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REPORTS  
FROM  
COMMITTEES:  
*THIRTEEN VOLUMES.*

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—(13.)—

STADE TOLLS;  
HARBOURS OF REFUGE.

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Session  
*3 December 1857 — 2 August 1858.*

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17  
VOL. XVII.

1857-58.

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# REPORTS FROM COMMITTEES:

1857-58.

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**R E P O R T**  
**FROM THE**  
**SELECT COMMITTEE**  
**ON THE**  
**S T A D E T O L L S ;**

**TOGETHER WITH THE**  
**PROCEEDINGS OF THE COMMITTEE,**  
**MINUTES OF EVIDENCE,**  
**APPENDIX AND INDEX.**

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*Ordered, by The House of Commons, to be Printed,*  
*14 July 1858.*

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*Mercurii, 28° die Aprilis, 1858.*

**Ordered, THAT** a Select Committee be appointed to Inquire into the origin of the Claim of the Government of Hanover to levy the Stade Tolls; to consider in what degree they are detrimental to the Commerce of the United Kingdom, and the effect of giving Notice to determine the Treaty under which this Country has assented to the Payment of such Tolls for a limited period.

*Veneris, 7° die Maii, 1858.*

Committee nominated of—

Mr. Henley.	Mr. Grogan.
Sir James Graham.	Mr. Blackburn.
Lord Ashley.	Mr. Bentinck.
Mr. Ricardo.	Mr. Villiers.
Mr. Milner Gibson.	Mr. Hutt.
Mr. Cardwell.	Mr. Fenwick.
Mr. Seymour FitzGerald.	Mr. Bowyer.
Mr. Bright.	

**Ordered, THAT** the Committee have power to send for Persons, Papers, and Records.

**Ordered, THAT** Five be the Quorum of the Committee.

*Mercurii, 14° die Julii, 1858.*

**Ordered, THAT** the Committee have power to report their Opinion, together with the Minutes of Evidence taken before them, to The House.

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## R E P O R T.

THE SELECT COMMITTEE appointed to Inquire into the Origin of the Claim of the Government of Hanover to Levy the STADE TOLLS, to consider in what degree they are detrimental to the Commerce of the United Kingdom, and the Effect of giving Notice to determine the Treaty under which this Country has assented to the Payment of such Tolls for a limited period:—HAVE considered the Matters to them referred, and have come to the following RESOLUTIONS, which they have agreed to Report to The House:—

1. **T**HAT the foundation of the claim of Hanover to levy the Stade Toll was a Treaty with Denmark in 1717 A.D., and a further Treaty with Sweden in 1719, by which, whatever right those countries possessed was transferred to the Elector of Hanover.

2. That the proportion of Stade Toll to freight in British ships from Hull to Hamburg is, at the present time, on a bale of spun silk, 115 per cent. ; on a bale of cotton goods, 142 per cent. ; and on a bale of woollen yarn, 36 per cent. That the average annual amount of Stade Tolls levied on cargoes, under the British flag, has risen from 3 *l.* 10 *s.* per 100 tons British in 1847, to 4 *l.* 6 *s.* 4 *d.* in 1855.

3. That the increase on British tonnage entering the port of Hamburg has been 102 per cent. since 1849, while the increase on Hamburg tonnage has been 248 per cent. since 1849 ; and the foreign tonnage, exclusive of British and Hamburg, entering the port of Hamburg, has, during the same period, increased 99 per cent.

4. That the Stade Toll is injurious to the trade and shipping of the United Kingdom.

5. That the tax is specially prejudicial to the part of our produce and trade which has to compete in foreign markets with similar articles not subject to the tax, and this is felt sensibly in the Coal Trade, and particularly in the export of the less valuable descriptions of coal.

6. That goods, the property of Hamburg citizens, and carried in Hamburg ships, are exempt from the Stade Toll, and British ships are thereby exposed to an unfair competition.

7. That the general trade to Hamburg, notwithstanding the discouragement occasioned by the tax, has more than doubled within the last ten years.

8. That the trade to Harburg, which is free from Stade Toll, has risen in a still more striking ratio ; that of Bremen, the Elsfleth Toll on the Weser having ceased, and that of Stettin (the Sound Dues having been abolished), have also increased in a very large proportion.

9. That the Stade Toll differs from the Sound Dues, inasmuch as the Sound Dues were a tax charged not only upon articles of export, but also on articles of general use imported into the United Kingdom ; but the Stade Toll is levied on exports from and not on imports into the United Kingdom.

10. That it does not appear that any service whatever is rendered by Hanover in return for the tax levied upon the commerce of Great Britain.

11. That if the Treaty of 1844, by which the United Kingdom is bound for a limited period to assent to the payment of the Stade Toll, were determined by notice pursuant to the terms thereof, but little injury or inconvenience would arise to the trade of this country.

12. That it is expedient that notice should be given to terminate the Treaty of 1844 with Hanover.

14 July 1858.

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# PROCEEDINGS OF THE COMMITTEE.

*Jovis, 2° die Maii, 1858.*

## MEMBERS PRESENT:

Mr. Henley.  
Mr. FitzGerald.  
Mr. Fenwick.  
Mr. Grogan.

Mr. Ricardo.  
Mr. Blackburn.  
Mr. Villiers.  
Lord Ashley.

Mr. *Henley* was called to the Chair.

[Adjourned to Tuesday, 1st June.

*Martis, 8° die Junii, 1858.*

## MEMBERS PRESENT:

Mr. HENLEY in the Chair.

Mr. FitzGerald.  
Mr. C. Villiers.  
Mr. Ricardo.

Lord Ashley.  
Mr. Grogan.  
Mr. Fenwick.

The Committee examined Professor *Wurm*.

[Adjourned to Friday, at One.

*Veneris, 11° die Junii, 1858.*

## MEMBERS PRESENT:

Mr. SEYMOUR FITZGERALD in the Chair.

Sir James Graham.  
Mr. Villiers.  
Mr. Fenwick.  
Mr. Milner Gibson.

Mr. Blackburn.  
Mr. Bowyer.  
Lord Ashley.  
Mr. Grogan.

The Committee examined Mr. *Hargreaves*.

[Adjourned to Tuesday, at One.

*Martis, 15° die Junii, 1858.*

## MEMBERS PRESENT:

Mr. HENLEY in the Chair.

Lord Ashley.  
Mr. Milner Gibson.  
Mr. Villiers.  
Mr. Seymour FitzGerald.

Mr. Fenwick.  
Mr. Blackburn.  
Mr. Bowyer.  
Sir James Graham.

The Committee examined Mr. *Hargreaves* and Mr. *R. Glover*.

[Adjourned to Friday, at One.



## PROCEEDINGS OF THE

*Veneris, 18<sup>o</sup> die Junii, 1858.*

## MEMBERS PRESENT:

Mr. HENLEY in the Chair.

Mr. Hutt.  
Mr. C. Villiers.  
Mr. Grogan.

Mr. Fenwick.  
Sir James Graham.

The Committee examined Mr. *Sanders* and Mr. *Ward*.

[Adjourned to Tuesday, at One.

*Martis, 22<sup>o</sup> die Junii, 1858.*

## MEMBERS PRESENT:

Mr. HENLEY in the Chair.

Lord Ashley.  
Mr. Bowyer.  
Mr. Villiers.  
Mr. Seymour FitzGerald.  
Mr. Fenwick.

Mr. Blackburn.  
Mr. Milner Gibson.  
Mr. Hutt.  
Mr. Grogan.

The Committee examined Mr. *Pratt*.

[Adjourned to Tuesday, at One.

*Martis, 29<sup>o</sup> die Junii, 1858.*

## MEMBERS PRESENT:

Mr. HENLEY in the Chair.

Mr. Fenwick.  
Mr. Villiers.  
Mr. Grogan.

Mr. Seymour FitzGerald.  
Sir James Graham.  
Mr. Bowyer.

The Committee examined Mr. *N. Wood*.

[Adjourned to Tuesday, at One.

*Veneris, 2<sup>o</sup> die Julii, 1858.*

## MEMBERS PRESENT:

Mr. HENLEY in the Chair.

Lord Ashley.  
Mr. Bowyer.  
Mr. Fenwick.  
Mr. Seymour FitzGerald

Mr. Milner Gibson.  
Mr. Grogan.  
Mr. Hutt.  
Mr. Villiers.

The Committee examined Sir *J. Emerson Tennent*.*Martis, 6<sup>o</sup> die Julii, 1858.*

## MEMBERS PRESENT:

Mr. HENLEY in the Chair.

Sir James Graham.  
Mr. Seymour FitzGerald.  
Mr. Ricardo.

Mr. Fenwick.  
Mr. Villiers.

The Committee examined Sir *J. Emerson Tennent*.

[Adjourned to Tuesday, at One.

*Martis, 13<sup>e</sup> die Julii, 1858.*

## MEMBERS PRESENT :

Mr. HENLEY in the Chair.

Mr. Cardwell.  
Mr. Villiers.  
Mr. Ricardo.  
Mr. Milner Gibson.

Mr. Bowyer.  
Mr. Hutt.  
Mr. Seymour FitzGerald.

The Resolutions proposed by the Chairman were read, as follows :

" 1. That the foundation of the claim of Hanover to levy the Stade Toll was a Treaty with Denmark in 1717 A.D., and a further Treaty with Sweden in 1719, by which, whatever right those countries possessed was transferred to the Elector of Hanover.

" 2. That the Stade Toll is injurious to the trade and shipping of the United Kingdom.

" 3. That the tax is specially prejudicial to the part of our produce and trade which has to compete in foreign markets with similar articles not subject to the tax, and this is felt sensibly in the Coal Trade, and particularly in the export of the less valuable descriptions of coal.

" 4. That goods, the property of Hamburg citizens, and carried in Hamburg ships, are exempt from the Stade Toll, and British ships are thereby exposed to an unfair competition.

" 5. That the general trade to Hamburg, notwithstanding the discouragement occasioned by the tax, has more than doubled within the last ten years.

" 6. That the trade to Harburg, which is free from Stade Toll, has risen in a still more striking ratio ; that of Bremen, the Elsfleth Toll on the Weser having ceased, and that of Stettin (the Sound Dues having been abolished), have also increased in a very large proportion.

" 7. That the Stade Toll differs from the Sound Dues, inasmuch as the Sound Dues being a tax charged on articles of general use imported into the United Kingdom affected injuriously all consumers ; but the Stade Toll being levied on exports from and not on imports into the United Kingdom affects only the producers and exporters, and the shipping employed in the transport.

" 8. That if the Treaty of 1844, by which the United Kingdom is bound for a limited period to assent to the payment of the Stade Toll, were determined by notice pursuant to the terms thereof, but little injury or inconvenience would arise to the trade of this country.

" 9. That it is expedient that notice should be given to terminate the Treaty of 1844 with Hanover."

The Committee proceeded to the consideration of the Chairman's Resolutions :

Motion made and question proposed, " That the foundation of the claim of Hanover to levy the Stade Toll was a treaty with Denmark in 1717 A. D., by which, whatever right to levy such tolls Denmark possessed was transferred to the Elector of Hanover."—Question put, and agreed to.

Motion made, and question proposed (Sir J. Graham), " That the proportion of Stade Toll to freight in British ships from Hull to Hamburg is, at the present time, on a bale of spun silk 115 per cent., on a bale of cotton goods 142 per cent., and on a bale of woollen yarn 36 per cent.

" That the average annual amount of Stade Tolls levied on cargoes under British flag has risen from 3 *l.* 18 *s.* 10 *d.* per 100 tons British, in 1847, to 4 *l.* 6 *s.* 4 *d.* in 1855."—Question put, and agreed to.

Motion made, and question proposed (Sir J. Graham), " That the increase on British tonnage entering the port of Hamburg has been 102 per cent. since 1849, while the increase on Hamburg tonnage has been 248 per cent. since 1849 ; and the foreign tonnage, exclusive of the British and Hamburg, entering the port of Hamburg, has during the same period increased 99 per cent."—Question put, and agreed to.

Motion made, and question proposed (Mr. Henley), " That the Stade Toll is injurious to the trade and shipping of the United Kingdom."—Question put, and agreed to.

Motion made, and question proposed (Mr. *Henley*), "That the tax is specially prejudicial to the part of our produce and trade which has to compete in foreign markets with similar articles not subject to the tax, and this is felt sensibly in the coal trade, and particularly in the export of the less valuable descriptions of coal."—Question put, and agreed to.

Motion made, and question proposed (Mr. *Henley*), "That goods, the property of Hamburg citizens, and carried in Hamburg ships, are exempt from the Stade Toll, and British ships are thereby exposed to an unfair competition."—Question put, and agreed to.

Motion made, and question proposed (Mr. *Henley*),—"That the general trade to Hamburg, notwithstanding the discouragement occasioned by the tax, has more than doubled within the last 10 years."—Question put, and agreed to.

Motion made, and question proposed (Mr. *Henley*), "That the trade to Harburg, which is free from Stade Toll, has risen in a still more striking ratio; that of Bremen, the Elsfleth Toll on the Weser having ceased, and that of Stettin (the Sound Dues having been abolished), have also increased in a very large proportion."—Question put, and agreed to.

Motion made, and question proposed (Mr. *Henley*), "That the Stade Toll differs from the Sound Dues, inasmuch as the Sound Dues being a tax charged not only upon articles of export, but also on articles of general use imported into the United Kingdom affected injuriously all consumers; but the Stade Toll being levied on exports from and not on imports into the United Kingdom, affects only the producers and exporters, and the shipping employed in the transport."

Amendments made.

Question, as amended, put, and agreed to.

*Resolved*,—That the Stade Toll differs from the Sound Dues, inasmuch as the Sound Dues were a tax charged not only upon articles of export, but also on articles of general use imported into the United Kingdom; but the Stade Toll is levied on exports from and not on imports into the United Kingdom.

Motion made, and question proposed (Mr. *Ricardo*), "That it does not appear that any service whatever is rendered by Hanover in return for the tax levied upon the commerce of Great Britain."—Question put, and agreed to.

Motion made, and question proposed (Mr. *Henley*), "That if the Treaty of 1844, by which the United Kingdom is bound for a limited period to assent to the payment of the Stade Toll, were determined by notice pursuant to the terms thereof, but little injury or inconvenience would arise to the trade of this country."—Question put, and agreed to.

Motion made, and question proposed (Mr. *Henley*), "That it is expedient that notice should be given to terminate the Treaty of 1844 with Hanover."—Question put, and agreed to.

Motion made, and question put, and agreed to, "That the Resolutions agreed to by the Committee, together with the Minutes of Evidence, be the Report to The House."

*Ordered*, To Report.

#### EXPENSES OF WITNESSES.

N A M E of W I T N E S S.	Profession or Condition.	From whence Summoned.	Number of Days absent from Home, under Orders of Committee.	Expenses of Journey to London and back.	Allowance during Absence from Home.	TOTAL Expenses allowed to Witness.	
J. Hargreaves	- Consular Service.	Hamburgh	- 20	£. s. d. 16 - -	£. s. d. 21 - -	£. s. d. 37 - -	These expenses were for attendance on two Committees — Stade Tolls and Consular Service.
J. Ward	- - Consular Service.	Leipzig	- 16	11 6 -	16 16 -	28 2 -	

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MINUTES OF EVIDENCE.

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# MINUTES OF EVIDENCE.

*Martis, 8<sup>o</sup> die Junii, 1858.*

## MEMBERS PRESENT.

Lord Ashlev.  
Mr. Fenwick.  
Mr. Milner Gibson.  
Mr. Henley.  
Mr. Ricardo.

Mr. Blackburn.  
Mr. Seymour Fitzgerald.  
Mr. Grogan.  
Mr. Hutt.  
Mr. Villiers.

THE RIGHT HONOURABLE JOSEPH WARNER HENLEY, IN THE CHAIR.

Professor *Christian Frederick Wurm*, called in; and Examined.

1. Mr. Ricardo.] I BELIEVE you are a Professor of History at Hamburg?  
—I am.

2. And are in the habit of giving lectures, I believe, upon international law, and commercial policy generally?—Hardly ever on international law, I think that would be hardly a subject to collect an audience, though it is one on which I have occupied myself a good deal.

3. Has your attention been especially called to the question of international law as respects the navigation of rivers?—It has been on several occasions. Those lectures which you mentioned were upon the commercial policy of the different German States; and at the beginning of the late war the question of the Danube occupied me a good deal, and I wrote a pamphlet on the subject, and that, of course, led me more deeply into the subject. I have, of late, analysed also, in a pamphlet, the recent Act of the Danube, and also treated the question about the competency of those States which are not river-bordering States, to insist upon the Act being laid before them for their control, in order to declare whether they found it coming up to the demands and to the principles of the Congress of Vienna, or not; those, I believe, are the principal occasions which have called my attention to the subject.

4. You have also specially studied the question of the Stade dues, have you not?—I have, with some application, but only since the first notice that was given to me of your intention of calling me as a witness; but I have since certainly devoted, I may say, the whole of my time to the subject. My appearing here is, of course I need not say, totally unconnected with the Government or with the city of Hamburg, or with any of the authorities; but they have assisted me most liberally in that one respect, which was the only one of importance, they gave me the very freest access to their records, and they are very full and very comprehensive.

5. Having studied all those documents, and having given so much of your time to the subject, have you been able to trace any legal claim upon the part of any country whatever to levy Stade dues, as they are at present charged?—Certainly not as they are at present charged, but if you go back to the grant or the document by which the grant was made, that document, so far so it goes, is one which, in my opinion, gives a very well founded claim; but I must expressly say, so far as

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Professor  
C. F. Wurm.

8 June 1858.

Professor  
C. F. Wurm.

8 June 1858.

it goes, nobody having a right to levy Stade dues, as they are at present, nor as they have been for centuries. But it certainly appears to have been the intention of one of the German Emperors to give that boon to the then Archbishop of Bremen.

6. Will you give the date of that?—I will give you an analysis of the document; I think it will go further than any remarks that I might offer as to the present state of the matter. It is a document in the year 1038, being a grant given by the German Emperor, Conrad II., of some dues; they were, in my opinion, very unlike the duty, such as it has been, ever since. He expresses himself in this document in this way: he says, as a remedy for the state of his soul, and at the intercession of his wife, Gisela, the Empress, and his son, Henry, he has given the following privilege to the Reverend Bezelinus, the Archbishop of Hamburg. I must, in the first instance, account for this by saying that Hamburg and Bremen were, at that time, the same archbishopric.

7. It was not the Archbishop of Stade?—No, there never was any Archbishop of Stade; but Stade is situate in the duchy of Bremen, which duchy is certainly not to be mixed up with the free city of Bremen; Bremen has always been, and still is, independent of that duchy.

8. Will you state what he gave to the archbishop?—He gave to him the right of having a market in a place called Stade, and of levying *telonium*, which certainly is a custom; and the right of coining money, and all that; the principal thing for us, of course, is as to the custom. Now, I cannot hold back the remark of Zachariae. He is an Hanoverian professor and a subject of the king of Hanover, and he expresses his opinion that the Emperor Conrad never contemplated anything more than to grant a market custom. I do not know if the word is English, but, I think, it will be generally understood. It is a market toll; and that was afterwards converted, or perverted rather, into a passage duty. There is a great deal to be said in favour of this opinion, but, however, as I cannot prove it I will not insist upon it. I think those who levy the duty have enough to account for; we are bound to adhere to that which can be proved. Now, admitting that a passage duty was contemplated by the emperor, it was not contemplated without a certain object, or except for a given purpose, nor was it given unconditionally. As to the object and the purpose, why it is quite clear that if you go back to the chronicles of the time the city of Hamburg had, a great part of it, been burnt down by the Slavonians, and also by the Normans, and more especially the cathedral had been consumed. They had attempted to rebuild it, and had done it in wood, because they had not money enough to do it in stone. And the Empress Gisela took a journey to Bremen, which can be traced, about that time, and her object was to have it rebuilt in stone. In its origin, then, it may be said to have been a *casus amici*. But still more important, I think, is the condition, "*Si quando rei necessitas exposcat vel utilitas.*" Then, of course, you have to prove, that the thing was either necessary or at least useful for obtaining the purpose, that definite purpose being the rebuilding of the church that had been destroyed. So you see the whole thing would remind one of what I believe is called the coal tax that had been granted for the building of St. Paul's, and was also afterwards diverted to purposes quite strange to the original intention. It is the only thing that I could compare with it. But this is not the whole. In the course of many centuries the Stade due has changed masters three or four times. The Archbishopric of Bremen has long since, even before the Westphalian peace, been secularised, so that there is no idea, not the slightest, of the revenue from the Stade dues having for centuries been appropriated to a purpose at all analogous to the intention of him who is considered as the founder, and as the authority for the legal claim. This is what may be adduced, so far as I can see, from the original act of the founder. Now, if the legal claim so far as it may exist is to be based upon this document, then of course there is one question, and I may say it is the main question, and that is the question about the prerogative of the German Emperor. Had he a right to grant a passage due? He had at that time, there can be no doubt. It is a question into the details of which I am very far from intending to travel, but it is most certain that until the capitulation of Charles V. the Emperor had a right to grant any passage duty without anyone's consent. Charles V. was the first who bound himself to ask the consent of the electors, and the unanimous consent of the electors was required. Afterwards there

Professor  
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there was one more restraint, the neighbours and those interested in the matter were previously to be heard upon the matter; they were to be referred to, they were to be consulted; but at the time of Conrad II. there can be no question that he was in undisputed possession of that prerogative. So I must repeat what I first stated, that so far as it goes that document or grant is perfectly legal. Now comes a different side of the question: the way in which those duties were in the course of time levied and raised was directly and decidedly unconstitutional, tried by the test of the public law of the Germanic Empire, and that I think is the only test. I cannot see by what other criterion you would try it. If you tell me you do not consider yourself bound by the statute of the German Emperor in the 11th century, no doubt you do not; but I think that everybody will admit that the theory which I am inclined to consider the only correct one; I mean the theory that this is an affair in which all nations, in which all mankind are interested; the theory, that in the case of any obstacles thrown in the way of commerce or navigation, every nation not only is interested, but is entitled, so far as in it lies, to secure a perfect liberty, an unshackled liberty of communication: everybody will admit that that theory is, comparatively speaking, of recent origin. In the time of King Alfred, or in the time of the Emperor Conrad, the First or the Second, I do not think that anybody would have started such an objection; but they would have tried it by the test of the public law of that State which imposes the duty. I may be mistaken, but so far as I know, nobody would at that time have thought of the right of interfering with what was going on in a foreign nation. But if you apply the test of German public law to the mode of levying and of raising the Stade dues, and more especially to the continual increase, imperceptible sometimes, and sometimes going by fits and starts, of the Stade dues, that is the most unconstitutional thing that could have been imagined. There were laws, imperial laws and resolutions of the Germanic Diet, which go straight to menace with punishment any arbitrary institution of customs, or any arbitrary raising of them. You may go back to the very remote times of the middle ages, and you will find that principle; you may go back so far as Rudolph of Hapsburgh, and you will find that he says, "He who does the contrary, he shall be considered even as a robber—as a highwayman." The thing was directly prohibited; it has never been allowed, and I know of only a single writing which asserts, that after the Westphalian peace every State of the empire was not only in the habit of raising their tariffs, but that that was an undisputed right. This bold assertion has been brought forward by the Committee of Mediation, which, in 1844, took the matter in hand, between Hanover on the one side, with reference to the Stade dues, and Hamburg and Denmark on the other side. I cannot expect that you, on my authority, would take it as a thing altogether unheard of, but I really wish that those might be consulted who are the most competent to speak to points of the constitutional system of Germany. I wish you would ask any one. If you would ask Zachariae, whom I have already named, he is a subject of the king of Hanover, but he is a man of far too independent mind ever to assert a thing, or deny a thing, because it would be disadvantageous to the finances of Hanover. Or ask Ægidi, a man of the same school; he combines elegance of reasoning and terseness of conclusive argument with the solid and abundant learning of the last century. Or ask Zoepfl; I may say he is one of the very antipodes, he is of a different school altogether, and I am quite sure that you will get the same answer from him. Ask any one whom my friend, Robert Mohl, has quoted in his excellent work on the history of political science: I do not think there is one man of authority upon such a point, but who will repeat to you and prove to you, that it is diametrically opposed to the public law of Germany, that any state of the Empire, any vassal, should have been entitled to do such a thing without the allowance of his sovereign the Emperor.

9. I think it is understood that the Committee do not wish to go too far back, or into too many particulars before the actual point which they have to consider; but I think perhaps I may ask you now whether all these questions were not considered, and whether an arrangement upon the subject of the navigation of the rivers generally, including the River Elbe, was not come to at the time of the Congress of Vienna?—To be sure there was, and it was necessary to do so.

10. You are quite prepared to go into the history of the Stade dues from their commencement



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commencement up to the present time?—Certainly; and I cannot say anything as to the claim of Hanover, except in connexion with what preceded.

11. Will you inform the Committee in what way those dues came into possession of the present family of Hanover?—By a good many intermediate steps. The archbishopric was secularised, and it was transferred to Sweden in the peace of Westphalia. I was asked whether I could trace any legal claim of any kind, and I said, "Yes, but not for the Stade dues as they are at present;" and I confess that except the original grant and the renewal by subsequent Emperors (and it was quite a usual thing to renew the thing in the same words), I know of no legal claim; and it is my firm conviction, after I have gone through a good deal of matter, that there is not any shadow of claim, except that original document of Conrad II., with which I had to begin. And although there is no express mention of the Stade dues in the Westphalian treaty, I think that the cession of Bremen to the king of Sweden will throw some light upon the subject. The question is, under what terms did the king of Sweden come into possession of the Stade dues? That was done at the peace of Westphalia. It had been a conquest. That conquest had been attempted during the Thirty-years' War. In fact Bremen, and Stade especially, was always considered a very good place; and Cromwell wanted to have it, and twice reverted to the idea. The king of Sweden obtained it as part of what was then called the satisfaction of Sweden for all her expenses in conducting the Thirty-years' War. He obtained it not as a Swedish province; but it remained (and that is a most essential thing), it remained an integral part of the German Empire. Bremen and Verden never did form two provinces of Sweden; but the king of Sweden was made a Prince of the Empire when he obtained those two duchies. You will find the number of votes which pertained to this his new possession, and the series in which he was to vote. All that was laid down in the Westphalian Treaty.

12. That is 1648?—In 1648, when Pomerania was given him, a clause was made as to those customs which had been introduced during the Thirty-years' War, and which were to be taken off. They were all to be given up because they were not legal, and he was bound not to attempt to levy them any longer; that was in Pomerania; and yet the king of Sweden, somehow or other, obtained a dispensation of that, his previous promise; and there it was said that he might also continue to levy the modern and recently introduced dues, those which had been declared illegal before; you see then in what light the king of Sweden considered it—simply as a financial business of course. Now there were certain principles laid down in the Westphalian peace, which were as it were the forerunners of the principles of Vienna: those principles were foreshadowed there, only they do not go very far; but still they go to this purpose, that all those duties which had in the time of the war been introduced illegally, should be taken off: *penitus tollantur*, and that the freedom of navigation on all the rivers shall be maintained or shall be restored. There you have quite clearly the terms under which Sweden alone could exercise the territorial power with regard to the matter of tolls; the new ones to be abolished, and those which had been raised in the intermediate time to be reduced; that is what the Westphalian peace says.

13. *Chairman.*] Am I to understand you that the arrangement was that the duties or tolls which had been levied during the war were to be taken off, and the navigation restored to its former state?—To its former state.

14. Can you tell the Committee what the former state was as to payments?—I can partly; we have got a sort of tariff, and it is a curious enough document; it is dated in 1613.

15. Then there was a tariff of tolls before these war tolls were put on?—Yes, there was, in 1613; that was before the Thirty-years' War, and the remarkable thing is that we have not got that in Hamburgh, but of that document we have got an authenticated copy from Regensburg. Now how does it get to Regensburg, to one of the imperial tribunals? Of course there must have been complaints, there must have been grievances; for I much doubt that any government would have been in the habit of submitting their tariffs to any court of justice, unless they had been accused of doing something contrary to the law, and most probably it must have been intimated to those good archbishops that there had been a grievance, or at Regensburg they would not have given in their tariff.

16. *Mr. Ricardo.*] But there was an uniform tariff during a very lengthened period, was not there?—That there was an uniform tariff I am sorry to say I think

think nobody can affirm ; all we know is, that there was a continual fluctuation, and that the tendency to raise it was very great.

17. But there was a tariff?—There was a tariff and it was very simple, but it contains the main points ; it contains the principle by which the dues are to be levied. That principle is one-sixteenth per cent., a strange enough proportion ; but, however, it will be evident as soon as you recollect the nature of our Ham-burgh money. The one-sixteenth per cent. means the 16th part of a mark, that is to say, of a shilling, as we call it. It is a penny, the 16th part of a mark, or shilling current, upon every 100 marks. You see the principle is an *ad valorem* duty ; the principle is so very simple, nothing can be more simple. And it is said that when there are goods which are not to be found in the present tariff, then the old rule is to be observed ; the man is to declare the value of his goods, and then he is to give 1 s. currency (about 1 d.) upon every 100 marks. There you have a principle.

18. Are the Committee to understand you, that that one-sixteenth was an *ad valorem* duty, and was the foundation of the whole tariff?—I am not prepared to say that ; we know nothing about that ; we cannot go back any further, except that the whole story opens with this principle, which is called the good rule, or the good old rule, or the old established rule, or the old roll.

19. Mr. Grogan.] You are now referring to some document of 1613?—Yes.

20. Mr. Fitzgerald.] When you spoke with reference to that article in the Treaty of Westphalia, if I understood the words aright, it only applied to those dues and tolls that had been laid on during the war?—Yes, that was the operation.

21. Will you repeat the words which you think applicable to this toll in the Treaty of Westphalia?—“*Inmoderata onera et impedimenta quibus commerciorum et navigationis usus deterior redditus est ;*” that is spoken quite generally ; the burthens and impediments are, of course, twofold ; namely, the improvement of the river, which is wanted, and then it is the taking off of the taxes. I cannot see that it is anything else. “*Penitus tollantur et provinciis portubus fluminibus quibuscunque pristina securitas jurisdictio et usus prout ante hos motus bellicos a pluribus retro annis fuit restituantur et inviolabilitur conserventer.*”

22. According to the Treaty of Westphalia, things were to be restored to the same condition in which they were before the war?—Yes, to the status quo of 1618, clearly.

23. Mr. Ricardo.] What was the state of things before the war ; was it this charge of one-sixteenth per cent. *ad valorem*?—That, so far as we know, was the principle of the ancient rolls, before the Thirty-years' War. The Westpalian Peace contains another article illustrative of the legal state of things. The instrument of peace, the treaty, says those duties which have been granted by the Emperor, with the assent of all the electors, including the toll granted to Oldenburg, shall remain *in pleno effectu* ; those are confirmed because they are legal. But in order that the liberty of commerce and of transit may be everywhere favoured, we decree,—it amounts to this,—that every magistrate throughout the whole empire is to assist every individual in regaining perfect liberty of communication and is to protect him from injuries and oppressions of every sort. You see this extends to the whole of the German nation. The nation acquires a right in the eye of the treaty, and it is the bounden duty of every court of justice, and of every magistrate, and of every authority in the whole empire, to look to the liberty and to the non-interference with trade and navigation.

24. Mr. Fitzgerald.] That clause applies only to those duties which were imposed by a grant from the Emperor, and assented to by all the electors?—That clause with reference to those duties is a confirmation clause.

25. Those dues are confirmed, and those only?—And those only ; this confirms to the Government the enjoyment of the revenues ; and the latter clause of the article confirms to the nation their right of being protected against any burthen-some interference.

26. Mr. Ricardo.] Or any increase of the tariff?—That is a thing by itself.

27. Mr. Fitzgerald.] Is this Stade toll, such as is there described, a toll granted by the Emperor, and assented to by all the electors?—As I stated, the Emperor gave the grant at a time when his prerogative was in full force ; his prerogative enabled him single-handed, and without the assent of any of the electors, or of any

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one, whoever he might be, to give such a grant ; but then I must add this, or it might appear as if I intended to suppress it, it is not only those ; those also are confirmed which have been introduced *usu diuturno*. Here you have long observance as a title of possession.

28. That would clearly apply to the Stade toll?—That would clearly apply to the Stade toll, if it remains within its limits ; it is quite as clear that if there have been innovations, if there have been deviations, if there has been an onerous and irreconcilable interference, then the other clause will apply. I think it must on all points be admitted that the Stade dues were at that time in constant practice ; but there were those who protested, and who protested you know without intermission, against any innovation. If you go back to the times of the archbishops, we have documents, for instance, in which Archbishop Hildebold is reconciled to the Hamburg people, and tells them that now he will acknowledge the privilege which the Emperor Frederick had given them, and he is now quite agreed ; but the town of Stade would not be reconciled to the people of Hamburg, and they insisted upon some points which had no origin in the imperial grant. The archbishop declares in the document that if the Hamburg people while they are still at war with Stade, wish to pay the due, but not at Stade, because it would not be safe for them to go there, they were welcome to pay at Bordesfleth, on the other bank, he had no objection. Again, there is a treaty in 1340 between Hamburg and the town of Stade, where the Stade people, upon the arbitration of Lubeck and a few of the other Hans Towns, declare that henceforth they will no longer interfere with the just rights of the Hamburgers. You see this is an uninterrupted and continued series of transactions ; the things have always been attempted, and have never been allowed to drop, but constantly there were applications, now here and now there, and that roll which I have quoted I think is a proof that there must have been injuries.

29. Mr. Villiers.] You have referred to a clause in the Westphalian Treaty, in which the dues which were formerly levied were confirmed?—Yes.

30. I wish to ask whether the Stade dues do not come under that class of duties which were, according to your evidence, legal?—That is to say, the levying a duty at Stade, comes within the terms of the article ; but to raise the rate of duty, or outgo this good old rule, has never been legalised.

31. But the dues as to levying were confirmed by the Westphalian Treaty?—Yes, no doubt the levy is so far confirmed by the Westphalian Treaty, that the imperial grant could not be interfered with ; that is quite clear.

32. That was as it existed before the Thirty-years' War ; it was confirmed afterwards by the Westphalian Treaty, which right to levy dues was assigned to the King of Sweden?—The right to levy dues is so far confirmed by the Westphalian Treaty as that right goes ; that is to say, if the Stade dues are included on the one hand, they are certainly not excluded from the application of those clauses which declare everything illegal as objectionable, and which declare that everything illegal is to be abolished—*pemitus tollantur*—all sorts of abuses.

33. It was provided by that treaty that those dues in future should be levied by the King of Sweden?—Nothing is said about levying the duties, and nothing is said about the King of Sweden.

34. What right did the King of Sweden acquire under that treaty?—A right compatible with the German constitution, and no further right.

35. But you have referred, have you not, to some specific right, either by acquiring the Duchy of Bremen or to having a financial right to levy dues?—The Stade dues are not directly alluded to, much less confirmed ; there can be no question that the Westphalian Peace does not contain one word which directly abolishes the Stade dues, even in their abusive form, as little as anything that confirms them ; but, of course, they are to be judged of by the Germanic constitution, and by those clauses in those articles which refer to customs.

36. Mr. Grogan.] Will you state what are the exact words in the Westphalian Treaty, conveying Bremen and its rights and privileges to the King of Sweden?—“ Cum omnibus et singulis ad eos pertinentibus, ubicunque sita sunt, ecclesiasticis et secularibus bonis et juribus, quocunque nomine vocatis, terra marique, in perpetuum et immediatum Imperii feudum, sub solitis quidem insigniis sed titulo ducatus.” That is all.

37. Whatever

37. Whatever then were the privileges of the duchy anterior to the termination of that war were by the treaty conveyed to the King of Sweden?—Yes, so far as those privileges were legal.

38. Then what existed anterior were conveyed to the King of Sweden?—Yes, conveyed to the King of Sweden, as I just observed, so far as they had a legal existence.

39. *Chairman.*] Can you tell the Committee when the King of Sweden parted with whatever was conveyed to him by the Treaty of Westphalia, and to whom?—You mean to say when Hanover got it; I should like to give you what the King of Sweden himself declared to the Hamburgh embassy in the year 1674, for that will show you about adhering to the old rule.

40. *Mr. Fitzgerald.*] From whence do you extract that?—I extract it from unpublished records. The first instance about the old rule is in 1674. He says this: “As to the tax of such goods as are not found in the roll, the Government of the King is to agree with the plenipotentiaries of the city, and the necessary additions shall be made to the roll.” There, you see, he declares his intention not to do anything in an arbitrary manner without the assent of the plenipotentiaries of the city of Hamburgh. Now, the King is not likely to abdicate, or to curtail any of his privileges; and I really do not think that he would have acted thus unless he had felt it to be his bounden duty.

41. *Chairman.*] The Committee do not want to go into any question as to what would have induced the King to do this or that; what they want to know is, at what time the right to these tolls passed from the King of Sweden, and to whom it passed: I understand that that was saving the privilege of Hamburgh?—I thought, and still think, that I ought to be allowed to prove how far that right of the King of Sweden extended, since more than that he could not transfer to any one. Allow me, therefore, to give you one more proof that the King was clearly conscious that he was not lord and master to regulate the tariff. The most important transaction under that reign is the transaction of 1691 and 1692, when it, the toll, was for the first time settled by treaty, afterwards broken and broken, but still it was solemnly promised to be kept. Before this, the King of Sweden had applied to foreign powers, and, among others, applied to Cromwell, for assistance against his enemies, and Cromwell stipulated to have Stade, which the King declared he could not part with. That was after the Westphalian Peace, in 1655. But in 1675, twenty years after the transaction with England, which led to nothing, the Dukes of Zelle and Luneburg occupied the Duchy of Bremen for several years, and immediately began innovations with regard to the Stade dues, which they levied, and those same dukes applied to Hamburgh about the future regulation of the Stade duty. After some years, when peace was restored, the dukes evacuated the country; but somehow or other they obtained a compensation for doing that which they were bound to do. They had occupied it in war, and without any cause, and the French, who were mediators, got them an indemnity; and when the northern troubles began anew, and upon a much larger scale, then it was that the Elector of Hanover tried to obtain those duchies. He tried everything. He allied with the Emperor of Russia, with Peter the Great, and promised to procure him the possession of Ingria, and several other provinces on the Baltic; and Peter the Great afterwards upbraided the King with his promises, which he said were made for one purpose only, to obtain his (the Emperor of Russia's) assistance in procuring the Duchies of Bremen and Verden. Now, there are a number of treaties connected with that subject, treaties with Denmark; they all bear upon the possession of those two Duchies of Bremen and Verden.

42. What is the date of those treaties?—The first was in 1711.

43. *Mr. Ricardo.*] You are now coming to the period when Denmark conquered the Duchies of Bremen and Verden from Sweden?—Yes, that was the episode.

44. Will you state in what manner the Duchies of Bremen and Verden became lost to the kingdom of Sweden; did Denmark conquer those duchies from Sweden?—Yes.

45. Will you give the details of the transactions between Denmark and England with reference to the cession of the Duchies of Bremen and Verden?—Hojer, who is the historiographer of the Danish Government, and who is a good authority, says that George I. had made up his mind to bring a sacrifice of 400,000 dollars, but

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Denmark was content to receive 300,000, if Hanover should be ready to give 50,000 dollars per annum during the war. Denmark was so convinced of the extreme ardour of George I. to obtain that prize that Denmark treated him in this way: Denmark delayed the evacuation, delayed even before that the conclusion of the treaty; "and," says Hojer, "by that means Denmark enjoyed a fair advantage of 130,000 dollars." They were sure that George I. would do anything.

46. *Chairman.*] May I ask you, in explanation of that—you said that George I. was willing to give up 400,000 or 300,000 dollars; are the Committee to understand that that was part of the indemnity or sum of money that was arranged to be paid under the mediation of France?—I beg your pardon, that was an earlier transaction; that was in 1679.

47. You have spoken immediately before of an indemnity; I want to know whether these sums of money were, or were not, part of that transaction?—No, this is the purchase-money; then Denmark insisted upon four separate articles.

48. *Mr. Fitzgerald.*] From what are you quoting now?—From treaties given in Dumont.

49. From what work of Hojer are you quoting?—The most glorious life of Frederick the First. If the Duke of Gottorp should be ready to take the indemnity for his part of Schleswig, then Brunswick (that is, George the First; the Electorate of Hanover, first had the official title of Brunswick, or Brunswick and Luneburgh,) then Hanover shall give one-half of that indemnity, and Denmark shall give the other half. Now, the Elector of Hanover had not done anything to eject the Duke of Gottorp. It appears, not only from Hojer, but from Lord Carteret's own despatches (which have been published by a learned Dane, (Grimur Ywmsen), that, the King of Denmark was overflowing with gratitude for the assistance he had obtained from Lord Carteret in obtaining that guarantee for Schleswig and indemnity to its rightful owner. They then added France as a third party. Each of the three was to give one-third of that million which the Duke of Gottorp was to have, and thus George the First was led into that guarantee of Schleswig; that mixed him up with those northern quarrels, with which I cannot see what England had to do; Haveman, in the third volume of his History of Hanover, which is written upon official documents, says that it was indeed a very difficult thing for Hanover to collect the money; what enormous sums were squandered there, and, last of all, Hojer's History characterised the matter thus: "A few tons of gold more" (a ton of gold is generally called 100,000 dollars) "Denmark obtained by the cleverness of the Danish negotiator." Hojer himself says, and he says it with a grave irony, that Denmark got some 100,000 dollars more, which the Hanoverians were ready to give them, because they were well aware that, after all, they had bought that rich duchy cheaply enough. Now, that was what he did in his character or in his quality as Elector.

50. *Mr. Villiers.*] What duchy did he mean?—Bremen. In 1715 he concluded at Griefswalde a treaty with the Emperor of Russia, and that he did in his quality as King of Great Britain; and there it is said that the King promises to assist, at the conclusion of the next peace, his Russian Majesty in uniting to his Empire the provinces of Ingria and Carelia, with all their dependencies.

51. *Mr. Ricardo.*] What is the date of that?—The 17th of October 1715. This, including the province of Esthonia with Revel, was the boon which George the First gave.

52. *Mr. Villiers.*] To Russia?—Yes, to Russia, and the counterpart is this: the Czar promises to assist the King of Great Britain to get from Sweden in perpetuity, in his quality as Elector of Brunswick Luneburgh, the duchies of Bremen and Verden; this is printed from a memorandum by the Russian Minister Bestulchef, which was handed to the Minister of the day on the 17th of October 1720. There are also English State papers which refer to the matter; the whole is printed in a German work of Schmauss, which contains a very ample history of these northern troubles; he was a Gottingen professor, and if he repeats anything of the kind, you may depend upon it he would not like to say anything that might throw discredit upon one of his master's predecessors.

53. *Mr. Ricardo.*] Has your attention been called to a report of a debate in the House of Commons, in which Mr. Stanhope said that the King of England

had

had entered into no engagements whatever with any country?—It is in connexion with another statement of Mr. Stanhope's.

54. You recollect perhaps that Mr. Stanhope said that the King of England had purchased these duchies with his own money, and that he had entered into no engagement whatever which compromised England in any way?—That was Mr. Stanhope, the Secretary of State; it is in 1717; my attention has been called to it; I referred to that part of the Parliamentary history, and he states both things almost in one and the same sentence; that the king purchased them with his own money, and that he was under no engagement; that there was nothing to shackle his liberty of motion; that was in 1717, and those treaties are in 1715. Then comes the great treaty; of course the Secretary of State could not have alluded to that; it was so many years after; in 1720, when the guarantee of Schleswig was confirmed; but all this strange business, as far as it goes, comes off to nothing, for Denmark could not keep itself in possession of the duchies. The Swedish ambassador requested the Senate to allow during this time the toll to be collected at Hamburgh, because it was not safe for his master to send to Stade. Now last of all, after the great catastrophe in Sweden, there was that treaty of purchase and cession by which the affair was concluded.

55. What is the date of that?—The 20th of November 1719.

56. Mr. *Fitzgerald*.] Between whom was that treaty made?—The Queen of Sweden, sister to Charles XII.

57. Who are the other parties to the treaty?—Great Britain. The third article says: “La Reine de Suède cède \* \* \* au Roi de la Grande Bretagne, comme Electeur de Brunsvic-Lunebourg, les duchés de Breme et de Verden, sur le même pied qu'ils ont été cédés à la Suède, par l'article du traité d'Osnabruck.” Yet it was only in 1729 I find that the whole was settled, as some indemnity had still been due to some Privy Councillors. Now, that is the way in which Hanover acquired definitively the duchies from Sweden at first.

58. Mr. *Ricardo*.] Did not England also undertake to send a fleet to the Baltic?—Yes, several times; I quote Hojer. “Eight English vessels under Captain Hobson joined the Danish fleet in the autumn.” That must have been 1714 or 1715, and as they were not intended to be English vessels, but Hanoverian vessels in assistance, as a sort of subsidies, for they were to be considered as the Elector of Hanover's ships, they went under the Danish flag. “And all those who were Swedish-minded,” says Hojer, “in all England, criticised it very bitterly; they gave it out as a humiliation of the British flag.”

59. I understand you to say that the ships were English; that they were furnished by England, and with English money, but they sailed under the Danish flag?—I cannot prove that they had been prepared by English money, but it was a proved thing that they were British vessels.

60. *Chairman*.] Those provinces in right of which the duties were levied, coming into possession of Hanover in the manner that you have told us, can you tell us anything of the amount of duties, and the manner in which the levying took place after they came into the possession of Hanover?—Hanover first of all promised, or rather declared that it should strictly adhere to the legal rate as established in 1691 and 1692.

61. Will you confine yourself to what Hanover did, and not what she said?—She did the very contrary of what she promised; there is a constant list of grievances.

62. Mr. *Ricardo*.] Is there any treaty under which Hanover undertook to do certain things?—It acknowledged that treaty which was in operation, the treaty between Sweden and Hamburgh, and it is quite clear that Hanover, whether she declared it or not, was bound by those engagements which she found in existence when she got possession of the country, and when she was in the way of levying the duty for her own benefit.

63. *Chairman*.] If you would be kind enough to tell us, if it is within your knowledge, what Hanover did, then we shall have an opportunity of seeing whether what she did was in contravention of the treaties, or agreeable to the treaties?—First it was said during that intermediate time, in 1715, the Danes exacted almost double what had been paid to the Swedes.

64. Mr. *Fitzgerald*.] That is before?—That is before.

65. After 1719?—Ever since October 1715, Hanover had been in possession; before, it was formally ceded. There is first of all the list of grievances; for instance, 0.81.

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stance, the inspector levies certain monies as his perquisites; one specie dollar, and for his writer one mark.

66. What is the date of that?—February the 15th, 1720. That is in the protocols of 1722. The hope is expressed that at the arrival of his Majesty the King of Britannia at Stade, he will do away with those abuses. They write to Hanover in 1722; the Senate says to the Chamber of Commerce, "The merchants ought to be very cautious, and ought rather to submit to be fined." Or, rather, it is not only fined, but if you do not pay the fine you are distrained or seized; they are not to pay, because by paying they might seem to acknowledge the right. It is intended as a protest; that is the idea. The Senate says that they ought never to submit; that they must not appear to acknowledge the right of Hanover of demanding more than was due by the treaty of 1691.

67. Mr. *Grogan*.] Have you any document which will show what was due by the treaty of 1691?—No doubt it has been printed in English, it is a Parliamentary Paper. You will find that you have the tariff of 1692, printed as a Parliamentary Paper. I have not got it with me, because I supposed it would be known in this country, but it is the tariff of deviations; and I shall afterwards give you instances enough, for there is a very long list of 1692. I must select them, for they are too many to be all given, of the way in which they overstepped everything.

68. Mr. *Ricardo*.] Cannot you put in the instances in writing, without going through it now in the form of a list of the points where they have overstepped the tariffs, which you think, under the treaty, they had a right to levy?—If you will take a few examples, they are very easily given. I have got the tariff with me, with all the articles analysed, and four or five successive tariffs compared with the original. I will give you extracts from that, and you will see that the thing went on progressing and progressing; I much wish to put in a proof of that.

69. *Chairman*.] You say there are four or five tariffs which show that for periods of years these duties have kept progressing?—Yes.

70. Can you put in those copies of the tariffs?—I have not got copies of the tariffs with me, except the original tariff.

71. Can you procure copies of the tariffs, and put them in as documents?—Yes, if they should be wanted.

72. Mr. *Ricardo*.] If you will be good enough to have these documents drawn up, and given in to the Committee, they will appear upon the evidence as documents put in by you?—Do you want to have the publications of the tariffs; there are no official publications, except the one which was officially reprinted under the Hanoverian dominion. Of course that is a principal document, because they officially inserted it in their collections, as the Swedes had done.

73. I understand you to say that there was a regular legal tariff to which Hanover was entitled, if she were entitled to any Stade dues at all?—Yes.

74. That she had exceeded this tariff upon many occasions?—On very many occasions.

75. That she had progressively, in fact, increased this tariff?—Yes.

76. Could you put in a paper showing first of all the original tariffs; and, secondly, the dates at which those tariffs had been altered, and the amounts to which they had been altered; could you get such a document drawn up for the Committee?—I have got one with me, but that is an analysis of the different tariffs; and if you wanted to verify it, of course you would have to have recourse to the originals.

77. If you will favour the Committee with the analysis, that is all we require?—You may very easily have all the tariffs verified, but besides the legitimate one of 1692, there is only one which has been published officially; the new one of 1821; I believe you have got it in English.

78. *Chairman*.] If you will put in the information which you have got upon your own authority, it will be for us to judge and see what that authority is worth; whether it be official or whether it be not, we wish to have such information as you have got, to be put in as your evidence upon your authority?—I cannot part with that document, because it belongs to the archives of the Chamber of Commerce; it is in German, but if you get some 20 or 30 examples from it, that will serve your purpose. I am labouring under the disadvantage that I cannot show



you the originals, which I have not got with me, but I am quite sure that there is not the slightest doubt that, if the Committee wish, they can be verified.

79. Where do you get that document from?—The Chamber of Commerce; if the Committee should wish to verify any circumstance, I am quite sure that Colonel Hodges, or any one whom Colonel Hodges should appoint, would have every possible facility of collating them or of having them collated; that is quite clear.

80. Mr. Ricardo.] Was not there a fleet sent to the Baltic under the English flag, under the command of Sir John Nicholl, as part of the arrangement made with Denmark for the cession of the duchies of Bremen and Verden?—In what year?

81. In 1715.—I have not any means of saying by referring to my notes upon the subject; it is stated that several times English vessels have been there, but I am not aware of the circumstances.

82. Was it a stipulation on the part of Denmark that England should declare war against Sweden?—I do not think it is amongst those separate articles, but seizing two provinces is certainly tantamount to a declaration of war.

83. I understand you to say that whatever rights were possessed by Sweden in reference to a toll to be levied at Brunshausen, were ceded to England at the peace with Sweden?—Whatever right the king of Sweden had legally acquired as to the Stade dues, was legally transferred to the king of England.

84. That was ceded to the King of England; whether in his capacity as Elector of Hanover, or King of England, is a moot point. Was it ceded to the King of England or to the Elector of Hanover; what is the expression?—The treaty of the 20th November 1719 says, in the third article, that the King of Sweden cedes to the King of Great Britain as Elector of the Brunswick Luneburgh, the duchies of Bremen and Verden, on the same footing on which they had been ceded to Sweden by the treaty of Westphalia. (O. H. 7.)

85. Then I understand you to say that that did not give a right to levy the tariff that has been levied by Hanover under the denomination of the Stade dues?—It did not; that is to say, it gave Hanover, at all events, no right to levy anything more than what had been settled in 1692.

86. The tariff that has been levied by Hanover is, in point of fact, more than the is authorised to levy under the treaty of 1692?—Hanover herself denies it so little, that she only tries to prove that she is not bound by the Treaty of 1692; indeed, that fact has never been questioned; in fact, there is no dispute; there is no Hanoverian writer but says exactly the same thing. There were, however, a great many modes and manners of eluding the stipulations of 1692; for instance, where a package is described in the old tariff, there they substitute another. Now, for instance, what was there called a "chest," they say "a small chest;" and then again, between "tonne," and "tass," that is, a tub, the one pays more than the other, and so they describe it in that way. Again, as to the language in which you declare, for instance, if you declare "spielzeug," that is, toys; if you declare that in German, they make you pay much less, but if you say "toy," in English, you pay double or three times that; if you say "papier zum schreiben," (paper for writing,) you pay five farthings, and if you say "writing paper," you pay 7d. Now, 999 people will say, of course, "writing paper," before it comes into one man's head to say, "paper for writing." I ought to state that these are instances of the way in which the old tariff used to be eluded; ever since the new tariff of 1844 has been submitted to, there was no longer any motive for such means of raising a revenue.

87. Mr. Fitzgerald.] In the Treaty of 1692 it was an *ad valorem* duty?—It was an *ad valorem*; the basis of it was one-sixteenth per cent.

88. Mr. Ricardo.] In 1692 that was the *ad valorem* duty?—That was the *ad valorem* duty.

89. Therefore, Hanover has no right to levy the duty in any other way than as an *ad valorem* duty?—No doubt.

90. Mr. Fitzgerald.] There was the old rule, as I understand it, which was that the duty was one-sixteenth?—That is the main thing; I wish that the tariff principle may be inspected. The thing is this: in analysing the different rates for different objects, it has been found that so far as we are acquainted with the prices of that age, the basis is uniform, I may say one-sixteenth per cent.; but at the end of the tariff there is an article that all those goods which are not specified, as it were, non-enumerated articles, are to be paid for by the old rule of one-sixteenth per cent. Now you may say that that is no proof, but that has



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been always kept in view ; the Hanoverian Government have so often declared that they will not allow their servants at Stade to take more than one-sixteenth per cent. in those cases, and that they will adhere to the tariff.

91. Then is there attached to the treaty of 1691 a tariff, enumerating the articles and enumerating the dues to be paid?—The tariff is dated 1692, but the Hanoverians object to it ; they say that the treaty is a treaty, and that is of 1691 ; but the tariff, or as it was called, the *tax article*, was merely one-sided, merely given by the territorial lord ; it was published, but that they have never bound themselves to it ; that is the Hanoverian plea. If you will allow me to go into it, I shall show you that it has been officially published, and that the whole concern, the treaty and the tariff, have this superscription : “The rectified Elbe Tax.” Now it is quite clear that a tax is not a treaty, but they would not have called the whole concern a tax if they had not considered the tax, at least as an integral part and parcel of the whole.

92. Up to the year 1692 the old rule existed, and I understand, in your opinion, the one-sixteenth *ad valorem* duty was paid on all articles?—Certainly.

93. By the treaty of 1692 there was this change made, that there was then a tariff by which a certain fixed duty was to be paid upon enumerated articles which, as far as you can judge, looking at the price and value of things at that time, was equivalent to one-sixteenth per cent., and there was a further article attached to the treaty, by which upon all unenumerated articles the old rule was to be adhered to, that of one sixteenth per cent. ; is that so?—The oldest rule which they have, and of which I have a copy, contains also a series of enumerated articles, with the rate which is to be paid, and there is also a clause which lays down one-sixteenth per cent. for the unenumerated articles. It is not myself who will be able to speak least of all authoritatively on the prices of goods in that century, but that work has been done by men fully competent, if there were any to do so ; some of the most distinguished merchants of our city, and the most intelligent men, who would spare no pains to ascertain from all and any sources the prices of things at that time. They have shown that this is the characteristic, that is, that which pervades the whole ; it is the thought, it is the idea which was at the bottom of the whole. I think that that work has been done by very good authority.

94. Then are we to understand that there never was at any time a fixed rule, that one-sixteenth *ad valorem* should be paid ; but there always was a tariff under which a certain duty was levied on enumerated articles which, as far as research can enable us to form an opinion, was equivalent to one-sixteenth?—It is rather to be concluded, that at no time did the tariff amount to more than that ; if the tariff of 1613 were to be inspected, I think it would enable you best of all to form your own judgment.

95. Mr. Ricardo.] By the last clause of that treaty it is enacted, that if the merchants are not satisfied with the charge made upon their goods, not an *ad valorem* charge, they may always fall back upon the one-sixteenth *ad valorem* at their option?—That is the case ; the whole of that is most important ; the Hamburg merchants never have pretended that the tariff of 1692 should remain ; they have pleaded for the principle ; they have always said that there are cases in which the interest of Hanover may be prejudiced. As soon as you revert to the old impositions there are, of course, many cases where more is taken, but the altered value of goods makes such a very great difference that our merchants have never pretended anything more than that they want a revision of that tariff ; they want to apply it to the prices as they are, and that, of course, is the only thing that one could demand of Hanover.

96. Mr. Villiers.] Am I to understand you that we should revert to the tariff of 1692 if we abrogated any treaty now existing?—That is my private conviction, though Hanover no doubt will deny it.

97. You say that Hanover would lose if you were to revert to the treaty of 1692?—In some cases it is quite out of the question ; nobody demands the tariff of 1692 ; the whole tariff, and nothing but the tariff ; but when that was mentioned it was always implied or spoken of that the whole thing should be revised, and that by common consent. First of all, the consent of the Elbe-bordering States would be required by the article of Vienna ; but the tariff ought to be adapted both to the principle and to the present circumstances.

98. Then all parties have admitted the right to levy the toll if all parties have agreed that it might be revised ; you say they have agreed to have some revision ?

—Yes ;

—Yes; they have admitted the right to levy the toll. At the meeting of the delegates of the Elbe-bordering States in 1819 Hamburg and Denmark protested that the others left the thing in suspense. You will, perhaps, give me another opportunity of laying before you a distinct history of those transactions.

99. When you say that all parties have agreed upon the necessity of revising the duties, you do not admit that any State has called for the repeal of them?—All States deny the right of Hanover to levy tolls in the manner in which it pleases her; but the Brunshausen toll is a river toll, and all river tolls are subject entirely to the decisions of all the river-bordering States; Hanover has no right to say as she has said repeatedly, that the Elbe-bordering States cannot interfere with her toll; she always refused to acknowledge the competency of the bordering States to look into this business. She went so far as to say that it was no river toll, but that it was a maritime toll; and yet she herself not only called it the Elbe toll, but in 1786 when somebody or other had said it was properly speaking a maritime toll, she said, "No, this is the Elbe toll;" yet she denies that; in fact I think that Hanover has done herself an infinite deal of damage, and prejudiced herself, by her system of defence.

100. Mr. *Ricardo*.] Let me ask you whether all those questions were not discussed and understood to have been settled at the time of the meeting of the Congress of Vienna?—The Vienna articles are of course the result of discussions; they contain nothing about the Stade duty, but there is upon record, and I think I am quoting good authority; what the Hanoverian deputies said at the Congress of Vienna. The fact was stated by the Austrian delegate at a meeting in 1821; I must refer to it, for the words are important; and the more so as the published reports of the River Navigation Committee at the Congress of Vienna are incomplete, and I think most probably from Lord Clancarty's despatches alone, it would be possible to obtain light upon those points which are wanting.

101. Was Lord Clancarty at the Congress?—Lord Clancarty was the one English plenipotentiary who was a member of that River Navigation Committee.

102. We are speaking now of the Congress of Vienna?—Yes; Lord Clancarty was at the Congress of Vienna, and he was the one English plenipotentiary who was a member of that committee; he constantly made liberal amendments, and he constantly was out-voted. I confess that this surprised me very much. I had never heard it; the Austrian delegate speaks of the competency of this River Elbe Navigation Committee. He says they were instructed to regulate everything; to regulate by common consent all that related to navigation. The Hanoverian plenipotentiaries, he says, were invited to the 12th conference at the Congress of Vienna, in order to give a declaration respecting the application of the principles to the Elbe; that is, he says, if the Hanoverian view at that time had been this, that the Stade dues were maritime dues; that most probably would have been declared, but the declaration is limited to the following; that as to Hanover they did not consider themselves authorised to consent to a diminution of the passage duty at Brunshausen; (Stade is so far away from the river, that Brunshausen is more convenient); they say they are not authorised to consent to any diminution of the revenue which might result from an alteration of tariff, and from the mode of collection unless for the one and the other a just indemnity shall have been granted. That, I think, was not known by anybody till the Austrian delegate stated it, who most probably had it as part of his instruction. How it was that so diligent and intelligent a compiler as the late Klüber, did not insert in it his protocols, I do not know. I suppose he did not know it.

103. From whence did you derive this?—From the original protocols of the Elbe Navigation Committee of 1819 to 1821. I derive it from one of the authenticated copies; every one who was party to that treaty got an authentic copy.

104. Mr. *Fitzgerald*.] I understand you, that that which is quoted in this Committee as having occurred at the 12th meeting of the conference, does not appear in the published protocols of that meeting?—No, but they are unofficial; I have repeatedly looked into the protocols. Klüber is not a man to leave anything out, but I can find no allusion, nor can others to whom I have applied; it greatly surprised me.

105. It does not appear anywhere officially, that there was any such declaration made at the 12th meeting of the conference, but it is referred to by the Austrian Commissioner at the time of this meeting of the River Navigation Commissioners in 1821, as having taken place in 1815?—Yes, but I must state

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that Klüber's collection is not an official collection, it was a private collection only; he was likely to know everything, unless there was an intention of withholding it from him.

106-7. Mr. *Ricardo*.] The 108th Article of the Congress of Vienna stipulates that the navigation of all the navigable rivers of Germany shall be free?—Yes; but a commentary on that article is necessary to understand it. The 109th Article is, “La navigation dans tout le cours des rivières indiquées dans l'article précédent, du point où chacune d'elles devient navigable jusqu'à son embouchure, sera entièrement libre, et ne pourra sous le rapport du commerce, être interdite à personne; bien entendu que l'on se conformera aux réglemens relatifs à la police de cette navigation; lesquels seront conçus d'un manière uniforme pour tous, et aussi favorable que possible au commerce de toutes les nations.” Now this, for instance, would appear to apply to every flag.

108. That article applies to all rivers; I understood you to have said a short time ago, that the pretext upon which Hanover refused to adhere to that article was, that this was a maritime tax, and not a river tax?—Certainly.

109. Were they able to maintain that position?—They did at the first and second meeting of the Elbe-bordering States; the first from 1819 to 1821, and the second in 1824; they did adhere to that. There was a protest, in both instances, by Denmark and by Hamburg, and the others hinted that they had never understood Stade to be situate on the sea; but Hanover did not give it up. At the meeting in 1842, for the first time, Hanover declared itself ready to treat upon the subject, but to treat not with the Committee as such, not with the delegates in their collective capacity and authority, but to treat with the individual States. The first thing was, that a Committee of Mediation was then proposed, privately as it was said; a Committee of Mediation between Hanover on the one side, and Hamburg and Denmark on the other. The mediators were delegates of Austria and Prussia, and Saxony, and then the principles of the new tariff and new regulations were first projected, and afterwards the thing became a treaty; and it was upon that occasion that Hamburg was completely isolated; it had been abandoned by all, and the Hamburg resistance, I cannot say was overcome, but the Hamburg Plenipotentiary heard it said from all sides, that it was he, and he alone, who impeded the conclusion of so important and so desirable a work. When the treaty had been signed it had to be laid before the civic assembly, and three times they rejected it, because they would not recognise the right. The treaty was ratified by the dictum of an exceptional authority which had then been applied to for the second time since the existence of our present constitution. The Senate cast lots for one half of the deputies, and the other half are elected by the civic Assembly. These deputies were to decide, and irrevocably; and, all things being considered, they found that it would be no use to withhold their consent any longer, and so the treaty was ratified, and Hamburg was not only abandoned by all the other States, but first of all; and, if I am allowed to say so, it was the decisive thing: England had retired from the contest, and completely given up all resistance. In 1841, on the 12th of August, Lord Palmerston, immediately before going out of office, signed a note, which contains so much on the subject of the one-sixteenth per cent., and enters so fully into those same materials which I have now had under my hands, that I must confess that I shall have very little to add to the most powerful and most conclusive argument which may be deduced from the materials in the records of the Chamber of Commerce. Those records had been inspected by Mr. Ward. That note was a plea for the one-sixteenth per cent., and a plain denial of any right on the part of Hanover to exact more. It was published in German three years afterwards.

110. Have you a copy of that note with you?—I have it with me; I have it in English. First there is a note from Count Kielmansegge, dated June 7th, 1841; and then there is the reply, dated the Foreign Office, August 12th, 1841. Mr. Ward must have taken very great care in that; it is an enormous mass of matter, which has to be waded through to arrive at those conclusions.

111. Mr. *Fitzgerald*.] What book is it to which you were referring; is it an official book belonging to the city of Hamburg, or what is the nature of it?—It belongs to the Chamber of Commerce, but the copies are not authenticated.

112. I observe that those are copies of documents which have been sent from Count Kielmansegge to Lord Palmerston, and from Lord Palmerston to Count Kielmansegge?—Yes.

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113. From whom did the Chamber of Commerce obtain those documents?—I do not know.

114. You cannot state where they came from?—No; I am not connected with the Chamber of Commerce at all; they gave me this document. I very much regret it was not authenticated.

115. Mr. *Ricardo*.] You do not know where those documents came from; have they been published on the Continent?—They have been published in the "Cologne Gazette" in German. I was rather surprised to find them there; it may be that they have been published in England.

116. Will you state what led to the Treaty of 1844?—That is what I have not the slightest idea of; but, so far as I have been informed, Mr. M<sup>c</sup>Gregor was no longer at Dresden. I have heard (it must have been a secret at the time) that he was said to be instructed to act as far as he could in this sense, that no article of the Stade tariff was to be raised on any consideration.

117. This is what you have heard; you have no authority for saying this?—I cannot quote any authority.

118. What impression was produced in Germany by the Treaty of 1844?—Everybody was thunder-struck.

119. They thought it an impolitic Treaty for England?—Yes, there was an immense difference between the Treaty and that note of Lord Palmerston, which had the greatest possible publicity in Germany; anything in the "Cologne Gazette" will be repeated everywhere. Nobody said it was authentic, but nobody denied it; it has always been considered as such. And then, three years afterwards, England submitted to sign the Treaty by which the Stade dues are acknowledged to all intents and purposes, only they are reduced in some articles, especially on English manufactures. I believe one-third. But I beg to say, as to the mere commercial parts, I would rather not state anything concerning them; because you will have the opportunity of examining those who are much better acquainted with the matter than I am.

120. But people were astonished that this Treaty, which is not in accordance with the note of Lord Palmerston which you have there, should have been concluded?—Yes.

121. By an article in the Treaty of 1844, it is stipulated that either party at the expiration of 10 years, and which 10 years have expired, may terminate the Treaty by giving one year's notice; is not that so?—That is so.

122. What would be the position of England in the event of the notice being given; I am speaking of England as of the other countries, which are almost all privileged nations, in the same position; what would be the position of England in the event of that Treaty being terminated?—England would be in exactly the same position in which the other not privileged nations are standing.

123. But would they revert to the tariff that was levied before the Treaty of 1844?—You see the *status quo* would return. Now about the *status quo*, there would be two different opinions; I have no doubt that the Hanoverian view of the case would be this, that they would try to revert to the tariff of 1821; which is a mere one-sided Royal Edict by Hanover; it was to be sure laid before the first meeting of the delegates of the Elbe States, but only at the 11th hour, and more than that, all the other States demanded an extradition, or rather the publication of the tariffs. Hanover declined that on the plea that it was a maritime duty which had nothing to do with the Elbe Navigation Committee, or rather with which the Elbe Navigation Committee had not to interfere with. At last, Hanover said that she would lay it before the Committee, but would do it for their notice merely; they were not to say whether they approved of it, or did not approve of it; and besides that, she declared herself ready to lay it before the Committee on this supposition only, that the Committee, before they had seen it, were to declare themselves content; to declare themselves satisfied. Of course there was a protest against declaring one's self satisfied with what one had not had an opportunity of seeing; but they delayed the submission, even in that manner; they delayed it till the very last day, till the very last hour, literally speaking.

124. Mr. *Fitzgerald*.] From whence do you obtain your information as to what passed at the meeting of 1821?—From the original protocols, they are in the Records of the Chamber of Commerce.

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125. Mr.

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125. Mr. *Ricardo*.] There were certain privileges given to English goods and ships under the treaty of 1844; that is to say, privileges in comparison with the tariffs levied before 1844, were there not?—Certainly, with regard to the tariffs; and besides, there is the necessity of setting down, as they call it in German, the necessity of stopping before the River Schwinge or opposite Brunshausen.

126. Have not these same concessions been granted to the ships and goods of other countries subsequently to the treaty of 1844?—I am sorry I have not the treaty with me, but, to my recollection, the English Treaty was certainly concluded at a later date than the treaty with the River States. The German Treaty was first; and then, besides that, there were the treaties with Belgium, and the United States of America. That of Belgium was, if I am not much mistaken, previous.

127. Do you know, or not know, whether the articles granted to England under the Treaty of 1844 have been subsequently granted to the vessels and goods of nearly all other nations in the same proportion and in the same manner?—If I recollect rightly, they are extended in much the same manner to all the favoured nations, and there is an official publication upon the subject. I have got with me a little book which contains it.

128. Has that been done without treaties?—No, but it was done by *publicandum*, as it was called, emanating merely from Hanover.

129. In case Hanover wished to charge the higher rate of duty which existed before 1844, she would have to levy that same duty upon all the other countries also?—She has reserved to herself the right of giving the boon where it is not asked, and of favouring, as she does, for instance, with regard to her, her subjects at Harburg, and of bestowing a favour in other manner than by treaty. I happen to know that an amendment to that article had been suggested by Hamburg. The amendment was this, that they proposed to leave out the words “or otherwise,” because, if you say “by treaty,” then it is only with foreign nations; but Hanover declared at the time she could not, and would not, give up that right to bestow a favour, even without exacting any reciprocation; so that I cannot answer the question definitively, but my impression is that Hanover would be entitled to continue to others a favour which in one case she would have refused.

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*Veneris, 11<sup>o</sup> die Junii, 1858.*

## MEMBERS PRESENT.

Lord Ashley.  
Mr. Blackburn.  
Mr. Bowyer.  
Mr. Fenwick.  
Mr. Seymour Fitzgerald.

Mr. Milner Gibson.  
Sir James Graham.  
Mr. Grogan.  
Mr. Henley.  
Mr. Villiers.

W. R. SEYMOUR FITZGERALD, Esq., IN THE CHAIR.

*John Hargreaves, Esq., called in; and Examined.*

130. *Chairman.*] WHAT position in the public service do you hold?—I am private secretary to Colonel Hodges, Her Majesty's Consul-general at Hamburg.

*John Hargreaves,  
Esq.*

131. In that capacity have you had an opportunity of becoming well acquainted with the present condition of the commerce between this country and Hamburg?—Yes.

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132. Is that commerce a large trade?—A very large trade.

133. Can you state to the Committee the number of vessels which have arrived in the Port of Hamburg from England in the past year?—About 2,000 vessels.

134. Are you able to state whether that commerce is an increasing commerce or not?—It is an increasing commerce.

135. *Mr. Villiers.*] That is without reference to their destination, when you say that 2,000 have entered the port of Hamburg?—I mean 2,000 British vessels arrived at the port of Hamburg.

136. They go on further to the north, do not they?—No; they remain at Hamburg, and then return.

137. *Chairman.*] Do these vessels generally deposit their cargoes at Hamburg to be forwarded on from Hamburg to other places?—Yes.

138. Has your attention been called to the operation of the Stade dues as at present levied upon commerce?—Yes.

139. Those dues are, I believe, at present levied under the treaty between this country and Hanover, made in the year 1844?—Yes.

140. Can you state to the Committee what are the provisions of that treaty with reference to the levy of Stade dues upon English vessels?—In 1844, for the first time, the Stade toll was brought under the revising committee of the Elbe-bordering states; it was then, for the first time, acknowledged as a river toll; and just before England concluded the treaty with Hanover, the river-bordering states made the convention of Dresden, and that convention of Dresden was embodied in the treaty with England, except that in the 6th article England provided that several articles should only pay two-thirds of the tolls agreed upon at Dresden.

141. What were the tolls that were levied before that time upon British goods?—Hardly anybody at that time knew what the tolls were; there was then hardly any public tariff known. In fact, before that time the Stade tolls were in such a state that you could hardly say to what they amounted; they were very old tolls, and some of the denominations that are used in commerce now were not known then at all, and therefore the Custom-house officers sometimes charged what they liked.

142. Was the indefinite nature of the charges the only ground of complaint that had been made up to that time, in reference to the injurious operation of the Stade tolls upon British commerce?—No, there had always been complaints against the injurious operation of the Stade toll.

143. On what ground?—On the ground of detaining vessels, and on the ground

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ground of a charge for which no services were rendered by the Hanoverian Government.

144. At whose charge, then, is the pilotage and the buoying of the river, and the other necessary regulations with reference to the port of Hamburg?—They are sustained by the Hamburg Government at a yearly expense of about 20,000 *l*.

145. Then are we to understand that with reference to the Stade tolls no service whatever is performed by the Hanoverian Government?—No service whatever.

146. Can you inform the Committee under what title it is that the Hanoverian Government claim to levy those tolls?—Under the old grant from the Emperor, in the year 1038.

147. Mr. Villiers.] Do you consider that those tolls have been levied ever since that time?—They were not levied during the time the French occupied Hamburg.

148. You mean in this century?—In this century; but it is a contested question whether they had been levied in the wars of the 17th century.

149. There has been no question about the right to levy, although you say they have complained of their being levied without any service to commerce?—In my opinion, they have only a right to levy according to the treaty of 1692.

150. But since that time the right has not been disputed?—The right has been disputed always.

151. As being illegal?—As being illegal.

152. Chairman.] You speak of the treaty of 1692; under that treaty what dues could have been properly levied?—One-sixteenth per cent.

153. Was there a tariff attached to that treaty of 1692?—There was a tariff attached to it.

154. Mr. Bowyer.] Who were the parties to that treaty?—Sweden and Hamburg.

155. Then that treaty would not establish the legality of tolls as against third parties?—Yes, I think it does; it was stated by the King of Sweden, who at that time was possessor of the Stade toll, that he would never levy more than one-sixteenth per cent.

156. But I mean that even to the extent of one-sixteenth per cent. it would not establish the right to take one-sixteenth per cent. as regards persons who were not parties to that treaty?—No.

157. Chairman.] But equally it would not bind the Swedish Government to levy no more than one sixteenth per cent. against those who were not parties to the treaty?—No.

158. Mr. Bowyer.] It might bind the Swedish Government as an admission on the part of the Swedish Government that they had no right to take more than one sixteenth per cent.—Certainly.

159. Chairman.] Was a tariff attached to the treaty of 1692, enumerating the articles, and the duty which should be charged upon them, or was it a mere declaration that upon all articles whatever there should be no further duty levied than an *ad valorem* duty of one-sixteenth per cent.?—It appears that there was a tariff drawn up, but at the end of it it was stated that if the merchant did not like the rates charged, he could pay one-sixteenth per cent.

160. Then it was left to the option of the merchant either to pay the duty according to the tariff, or, if he chose, to pay an *ad valorem* duty of one-sixteenth per cent.?—Yes.

161. Mr. Villiers.] Was that the arrangement under the treaty of 1691?—Yes.

162. And that remained in force till the treaty of 1844?—It has never taken effect.

163. Chairman.] For how long were the duties levied according to that treaty?—I believe they were never levied according to that treaty.

164. Mr. Villiers.] Can you state to the Committee why they were not?—Because at that time there was a war between Denmark and Sweden, and Denmark was in possession of the Duchy of Bremen, where Stade is situate, and therefore the Swedes could not levy the dues.

165. You say they never have been levied according to that tariff?—No; because afterwards Denmark got possession of the duchy, and sold it to Hanover.

166. But



166. But that has nothing to do with levying the dues; because I suppose that whoever had the duchy claimed the right to levy the dues?—But Hanover never acknowledged the treaty; Hanover has always said it is not a legal treaty.

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167. Can you tell the Committee upon what ground or right Hanover ever levied the dues?—They were levied upon very old rolls—what they call toll rolls.

168. According to custom?—Yes; what they used to call observance.

169. I suppose that was according to some rule?—That I do not know; and I think they did not know it themselves.

170. What did they actually levy upon merchandise before the treaty of 1844?—As I stated before, there was some old toll roll, and they levied their dues according to that; and if new merchandise came in, they would levy them according to what they thought was the denomination of those new articles.

171. If this treaty were set aside or considered to be expired to-morrow, should we fall back upon those old toll rolls?—No; the Hanoverian Government would fall back upon the tariff of 1844, made with the Elbe-bordering states; they never can fall back upon any other tariff now.

172. This tariff, which has been made in virtue of the treaty of 1844, has been levied since 1844?—That tariff was agreed to in 1844 by the Elbe-bordering states amongst themselves.

173. Was not that by virtue of the treaty?—It was by virtue of the Convention which the Elbe-bordering states concluded amongst themselves, and by that convention the Stade toll was for the first time acknowledged to be a river toll.

174. But did not the treaty provide for the toll which was to be levied upon English goods?—You refer to the treaty with England; the treaty between Hanover and England falls back upon the convention concluded in the same year 1844, amongst the Elbe-bordering states.

175. *Mr. Fernwick.*] That was before the date of the treaty between Hanover and England?—The convention of Dresden was concluded in April, and I believe the treaty with England in June.

176. *Chairman.*] By the treaty between this country and Hanover, we pay the same rate of duties as was agreed upon between the Elbe-bordering states, with the exception that upon certain goods of British manufacture we are entitled to pay one-third less; is not that so?—Yes; but the Elbe-bordering states pay just the same upon English goods now as we do; so does German or Prussian produce in British, German, Prussian, Swedish, Norwegian, or Belgian vessels; and United States produce, if imported in those vessels, or in vessels of the United States; and Mexican produce, if in vessels from Mexico, or in those other states. Danish, Belgian, and Hamburg goods conveyed in Danish or Hamburg vessels, pay the same reduced rate of dues according to the treaty of 1844 with England.

177. *Mr. Villiers.*] What do Hanoverian vessels pay?—They pay just the same.

178. Is it not alleged that they are exempted?—That is a mistake.

179. *Chairman.*] Am I to understand you to say that as matters stand at present, British commerce has no advantage whatever over the commerce of any of the Elbe-bordering states?—No.

180. None whatever?—Certainly not.

181. *Sir James Graham.*] Has it any disadvantages?—No.

182. As compared with Hanoverian vessels?—No.

183. *Chairman.*] In saying that Hanoverian vessels are not exempted, are you speaking of Hanoverian vessels that discharge at Hamburg?—Yes; since 1850, by a decree of the Hanoverian Government, by which cargoes discharged at Harburg are exempted from the payment of the Stade toll, the whole nature of the Stade toll has been changed; formerly it was a tax levied upon goods in vessels which traded with the Elbe; now it is a tax upon vessels which do not discharge their goods at Harburg.

184. Harburg, I understand, is a Hanoverian port?—Yes.

185. Vessels discharging at Harburg are free from the payment of Stade tolls?—Yes.

186. Of all nations?—Of all nations.

187. Then British commerce is not at any disadvantage, and does not pay any higher rate of duty when the cargo is discharged at Harburg?—No.

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188. That



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188. That is an advantage given to the town of Harburg, and not to the commerce of any particular country?—It is an advantage given to the town or to the port of Harburg.

189. It is not an advantage given to Hanoverian vessels over other vessels?—No.

190. It applies to all vessels whatever?—It applies to all vessels whatever.

191. Mr. *Villiers*.] Do you mean by that to say that the duties are levied upon vessels not going into the Elbe, or vessels not going to Harburg?—I said, that formerly the Stade toll was a tax levied upon all vessels going to the Elbe; now, since Harburg has been exempted, I consider it a tax levied upon vessels which do not discharge their cargoes at Harburg; that is the nature of the toll now.

192. Sir *James Graham*.] All vessels bound to Hamburg pay an equal duty at Stade?—Yes.

193. Hanoverian vessels included?—Yes.

194. And all vessels going to Harburg are exempt from paying any duty?—Yes.

195. Mr. *Fenwick*.] Does that apply to Hamburg vessels; do they pay the Stade toll?—Hamburg vessels alone have no privilege; it is the Hamburg citizens; that is to say, a cargo belonging to Hamburg citizens on board a Hamburg vessel is exempt from paying toll.

196. Is it a toll upon the cargo, and not upon ships?—It is a toll upon cargo and not upon ships.

197. And cargoes belonging to Hamburg citizens are exempt from such toll?—Yes, if they are on board Hamburg vessels.

198. So that there is an exemption in favour of Hamburg citizens?—You cannot call it an exemption; it is an old privilege which was granted by one of the Emperors.

199. *Chairman*.] Have you got the tariff there according to the present duty charged?—I have got it with me.

200. Mr. *Milner Gibson*.] If they are goods belonging to a Hamburg citizen, but carried in a British ship, they would then pay the toll?—Yes.

201. *Chairman*.] You said that the amount of the toll was not the only objection which had been taken to the payment of it, but also the delay which was caused by its collection?—Yes.

202. Will you state whether any alteration has been made of late years in the method of collecting the toll?—The detention is not so much now as formerly, but that is not according to treaty. When the convention was concluded in 1844, a great many alterations were certainly made, and a great deal of the complaint was done away with; but still it was found that the treaty would not work at all, and therefore the Hamburg shipbrokers undertook to guarantee the toll for each vessel addressed to them; they guaranteed to the Hanoverian Government that they will pay the toll, and therefore all detention is done away with, because the Government have the Hamburg shipbrokers to rely upon.

203. Then there is at present no detention at Brunshausen at all?—There is a detention.

204. What is the detention?—They have to send the ship's papers on shore.

205. Mr. *Villiers*.] But that is all, is it not, that somebody goes on shore with the papers?—Somebody goes on shore with the papers, and must come back with a paper, allowing the vessel to proceed; how long they are detained there I cannot say for certain, but I should say that steamers are not detained so long as colliers are. If the Committee want to know anything about that, they ought to call a collier captain before them; if I had known that I should be examined, I would have gone down and made inquiry, but I cannot state how long vessels are detained.

206. *Chairman*.] Is the inspection of the ship's papers, with a view to ascertain the origin of the goods, at the present time made a serious matter of complaint?—It is not made so serious a matter of complaint now as it used to be, but I must remind the Committee that this arrangement between the Hamburg shipbrokers and the Hanoverian Government is not by treaty; therefore it can be done away with any day.

207. Mr. *Villiers*.] But it is with a view to prevent the detention of the ship that that arrangement has been made?—Certainly.

208. *Sir James Graham.*] How long has that arrangement been in force?— I should think for about the last ten years.

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209. *Mr. Grogan.*] It is practically this, that the shipbroker who resides in Hamburg, undertakes to see the duty paid to the Hanoverian Government upon the goods in the ship consigned to him?—Yes; there is a Hanoverian toll-office in Hamburg.

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210. Consequently, the Hamburg shipbroker merely receives the paper from the Hanoverian toll-house and sends the amount of the charge on the ship to the Hanoverian toll-house; that is the arrangement, is it not?—No; all the ship's papers are taken away at Stade and sent to the Hanover toll-office at Hamburg; and then the shipbroker has to send in a second list, stating all the articles of which the cargo consists; and then he will get a certificate from the toll-office in Hamburg; then the ship can begin unloading after he has given his guarantee—that is understood between them.

211. *Chairman.*] You say the shipbroker hands in a list of the articles composing the cargo?—Yes.

212. Do the toll-officers, as a general rule, take any steps by search or otherwise to verify the accuracy of that list of the cargo?—They have an opportunity of trying the accuracy of the cargo by other means. According to the treaty, the Hamburg Custom-house authorities communicate their lists, so that the officers can compare one with the other.

213. Is that according to the treaty between this country and Hanover in 1844, or according to the convention of which you have spoken among the river-bordering States?—According to the convention among the river-bordering States.

214. And then, according to the comparison of those two lists, it is that the toll-officers receive the duty, and see that there is no fraud committed?—The toll officers have also the right of search, but I have never known an instance in which that right has been exercised.

215. *Sir James Graham.*] Do I correctly understand you, that originally, under the treaty of 1844, between Hanover and England, English vessels had some preference, and paid a somewhat lower duty?—I think they never had; it was the impression that they had.

216. But whatever has been the impression, in point of fact it is now an equal duty levied upon all shipping, except Hamburg bottoms?—No, it is not so; for instance, French manufactured goods would pay the full dues; but then no French manufactured goods come to Hamburg by sea, they are sent by railway. Those preferences granted to England look uncommonly well on paper, but are worth little in practice.

217. But all shipping coming to Hamburg, except Hamburg bottoms, pay an equal duty at Stade?—Yes.

218. *Mr. Grogan.*] If the treaty of 1844 were abrogated between England and Hanover to-morrow, the position of English commerce would not be affected thereby?—It would be affected so far, that it would have to pay the full dues again.

219. But I thought you said that at this moment England pays the same dues as the river-bordering States?—Yes, but that would be done away with; that is according to the treaty with England, not according to the convention between the river-bordering States.

220. *Sir James Graham.*] England, according to the treaty, is virtually placed upon the same footing as the river-bordering States?—Yes.

221. And has the same advantages as if she were a river-bordering State?—Yes.

222. If the treaty between Hanover and England were abrogated, it would be open to Hanover to levy an indiscriminate duty as against England, compared with the river-bordering States; is that so?—If the treaty with England were renounced, then the English manufactured goods which pay now only two-thirds of the toll, would pay the full toll, and the Elbe-bordering States importing those goods in their vessels would just pay the same; they would then also pay the full dues.

223. They would pay the same as they now do?—No, they would pay the full dues, because this exemption which England procured to be made, was afterwards conceded to the Elbe-bordering States.

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224. *Mr. Grogan.*] Is the position of things this, that by the convention with the Elbe-bordering States a certain rate of duty was arranged and agreed upon?—Yes.

225. And subsequently to that, a treaty was made with England, which gave to England a preference of one-third?—Yes.

226. And subsequently to that treaty, the Hanoverian Government have placed all the Elbe-bordering States upon precisely the same footing as the English commerce?—Yes.

227. Consequently, the abolition of the treaty would merely amount to the raising of the tolls upon everything?—Yes; but I should remark at the same time, that I think that the whole value of this exemption in paying only two-thirds toll does not amount to more than 2,000 *l*.

228. *Chairman.*] Is there not an article in the convention between the river-bordering States, by which it is provided that the dues payable by the river-bordering States shall never, after they have once been reduced, be increased again without the consent of all the river-bordering States?—Yes; they cannot be increased beyond the tariff of 1844.

229. Then how do you reconcile that with the statement which you have just made to the Committee, that if the treaty between England and Hanover were put an end to, by which England would be deprived of the advantage of paying one-third duty less, all the river-bordering States would also be deprived of the same advantage; would not that be tantamount to an increase of duty affecting the river-bordering States without the consent of all the river-bordering States?—It would not; because the Dresden Convention does not say one word in the tariff agreed to of the concession made to England; that was a voluntary concession made to the bordering States afterwards; the Dresden tariff does not say anything about exemptions given to England.

230. Then the concession by which the river-bordering States have the same advantage as the English of paying one-third less, is a voluntary concession on the part of the Hanoverian Government, and forms no part of the convention with the river-bordering States?—Exactly.

231. Then if that be so, why should not the Hanoverian Government continue that concession to the river-bordering States, although by putting an end to the treaty we should lose the advantage of it?—According to the convention of 1844, Hanover cannot give any preference to any other nation. You must always consider that this convention is not the treaty with England.

232. In what is provided; is it provided in the convention between the river-bordering States?—Yes.

233. Then the very fact that Hanover did give the advantage to England of one-third was a breach of that convention?—It was to some extent; decidedly it was.

234. *Mr. Villiers.*] They claimed it, did not they; they would have a right to claim it?—Hanover gave it them afterwards.

235. But they claimed it?—I do not know if they claimed it, but it was given to them at once. The Committee will perceive the anomalous state of the toll; the Hanoverians call it a river toll; they make a convention with the river-bordering States, in which they say, we can alter nothing in the tariff, except by the unanimous consent of the river-bordering States. And then all at once they turn round and make treaties with the maritime powers, and alter the very convention.

236. *Chairman.*] Then am I to understand you that that convention with the river-bordering States went so far as to say that not only no alteration should be made in the duties as affecting the river-bordering States, but also that Hanover was obliged not to make any alteration as affecting any other States whatever?—The convention provides that nothing can be altered in the convention, except with the consent of the river-bordering States; therefore, I want to point out to the Committee the curious position this toll is in; Hanover makes a convention, by which she has no right to make any alteration without the consent of the river-bordering States.

237. Do you mean an alteration as affecting general commerce, or only an alteration as affecting the river-bordering States?—She has no right, so far as the Stade toll is concerned, to make any alteration, unless she does so by treaty with foreign powers with the consent of the Elbe-bordering states.

238. Sir James Graham.] Can you produce a copy of that river-bordering States convention?—It is attached to the treaty with England.

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239. Are the duties *ad valorem*?—No, they are not *ad valorem*, they are charged by weight.

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240. Then are all duties levied by weight, and none *ad valorem*?—One is *ad valorem*, that is bullion.

241. That is the exception?—That is the exception.

242. Chairman.] You say that under the treaty, English manufactured goods imported in English bottoms, pay one-third less than if they were imported in other bottoms?—Yes.

243. Is it necessary, in order to obtain the benefit of that stipulation, that any certificate of origin should be produced?—Yes, I can produce a copy of one of those papers (*producing the same*).

244. Is this a ship's paper?—Yes; they must hand that in to prove that the goods are of English manufacture. (*The Paper was delivered in.*)

Vide Appendix.

245. Mr. Villiers.] Those papers are not questioned, they are always accepted as a matter of form, are they not?—Those papers prove that the goods are what they are purported to be.

246. What they are purported to be, but there is never any inquiry in order to verify them?—They are signed by the English Custom-house officer; there is an official seal upon them.

247. Chairman.] Where are these produced; are they produced at Brunshausen, or are they produced only at the toll-office in Hanover?—All the ships' papers are given to the toll-officer at Brunshausen, and he sends them up to Hanover.

248. Are they forwarded from Brunshausen to the Elbe toll-office, or is the master obliged to produce second copies?—The broker must hand in a second list.

249. But the cocket is the document showing that the different articles are British goods, coming under the exemption of paying one-third less?—Yes.

250. Then there is this disadvantage, that vessels trading to Hamburg have to produce a set of papers at Brunshausen, and have also to produce a similar set of papers for the use of the toll-office at Hamburg?—Yes.

251. They also have to produce, I suppose, a second manifest of the cargo?—Yes.

252. In what form is that manifest drawn up: does it specify the goods under different heads and weights?—Yes.

253. Is there any disadvantage to which British vessels are subject from that way of specifying the weights of the different articles of the cargo?—Yes; there is a disadvantage to British commerce; because the English weight is 10 per cent. lighter than the French or Zollverein weight, and in consequence of that, English goods in fact pay 10 per cent. more toll than all other goods.

254. The English manifest shows so many pounds, and upon that number of pounds the same duty is paid, but the pound itself being less than the French pound, more is paid upon the whole cargo than there ought to be?—Yes.

255. Mr. Villiers.] Have you any return of what is annually paid on the average for Stade dues by England?—Yes.

256. An official return of it?—No; it is not an official account of it from the Hanoverian Government; but there are statements in Hamburg, which I believe are correct.

257. What is the amount which is annually paid?—About 20,000 *l.*

258. Paid on English goods or English commerce?—Yes.

259. I think there is no charge upon the vessel, is there?—There is no charge upon the vessel.

260. Chairman.] Can you say what, on the average, it is that the British flag pays on 100 tons, as compared with what other flags pay, in consequence of this difference of weight?—I find that the British flag pays about 4*l.* 2*s.* 2*d.* upon 100 British tons.

261. Is that on all articles, except coals and bullion?—No; this is the average of all articles, if we take the general cargoes.

262. Do you except out of that average bullion, or is it included in that?—No; I was asked if it was an *ad valorem* duty, and I said all the rates were charged by weight except bullion, which is charged one-sixteenth per cent.

263. Are coals included in that average?—Yes.

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264. Is there an exceptional toll paid upon coals?—There is a toll paid by weight on coals; but it amounts to nearly  $2\frac{1}{4}$  per cent.

265. What do you say is the average per cent. of the tolls upon other goods?—I should say the average of toll is about a quarter per cent.

266. About a quarter per cent. on other goods, and about  $2\frac{1}{4}$  per cent. upon coals?—Upon coals, it amounts to  $2\frac{1}{4}$  per cent.

267. Mr. *Fenwick*.] Two and a half per cent. upon the value?—Upon the prime cost of the coals in Newcastle; the average amount of Stade toll on all articles taken together would be about a quarter per cent.; but upon coals alone, taking that single article, it would amount to  $2\frac{1}{4}$  per cent. or  $2\frac{1}{4}$  per cent.

268. Sir *James Graham*.] That is on account of their bulk and weight?—Yes.

269. Mr. *Villiers*.] That is according to the English weight; but if it was measured according to the weight of the Zollverein weight, less would have to be paid upon the whole amount?—Yes; it would be 10 per cent. less upon  $2\frac{1}{4}$  per cent.

270. Have not the British exporters complained of that difference in the weight?—Of course they have.

271. What reply has been given to that complaint?—No reply can be given to it, because, according to the treaty, the Hanoverian Government has a right to levy that toll.

272. I thought you said it was according to a particular rate that they imposed the toll; but that in consequence of the English weight being less than that of the Zollverein, we pay more than we ought to pay?—It is because it happens that our pound is lighter; the tariff says so much per pound.

273. A pound of a certain weight?—No; it does not say a certain weight; it always takes the weight of the port from which the goods are shipped.

274. Mr. *Bowyer*.] Why do the English captains use the English weight instead of using the Zollverein weight?—Because they must take the weight of the country from which they come.

275. Is there anything in the treaty compelling them to do so?—Certainly.

276. Are there express words in the treaty obliging them to take the weight of the port from which they come?—Yes; otherwise they might adopt a still heavier weight.

277. Mr. *Villiers*.] Are there any fees payable upon delivering those papers?—No; there are some expenses by the treaty which are to be paid for going on shore, and coming back with the certificate that they can proceed.

278. When you stated 20,000*l.* a year, did not that cover those expenses?—No; but those expenses are very small.

279. The loss of time is too small to be considered, I presume?—As to the loss of time, I cannot speak with any certainty about that, because I cannot judge of it. I might state at the same time a matter which is another curious instance. The treaty mentions that a guard-ship is to be at Brunshausen; the guard-ship is no longer there, they have now a little battery.

280. What was the guard-ship to be there for?—To protect, I believe, the toll-house; but that guard-ship has been removed; it appears that it cost them too much money; and since that guard-ship has been removed, those petty charges are rather higher than they were before: what they call the petty charges are named in the treaty.

281. Mr. *Bowyer*.] What treaty do you mean?—The treaty of 1844. The convention is embodied in this treaty. According to the English treaty the Stade toll is levied on British vessels, on British cargoes.

282. Sir *James Graham*.] Are sailing vessels compelled to drop their anchors?—Certainly; they must send somebody on shore; they must send a boat on shore, and in rough weather they would be obliged to drop anchor.

283. *Chairman*.] With reference to the heavy duty on coal, is there not a separate article attached to Article 2 of the Convention with reference to coal; by the convention it is arranged, is it not, that if the duty on any article shall exceed three-eighths per cent., then the toll shall be reduced?—Yes, it is: "Separate Article C to Article 2 of the Convention and to the Tariff" says that if the goods exceed three-eighths per cent. the dues shall be lowered; but it is said further, "From the above arrangement are excepted the articles of coals, coffee, beverages, rice, and ground rice, the articles enumerated in the

tariff under the heading of tropical fruits, tobacco, and manufactured tobacco, tea, sugar, train oil, skins and hides, materials for spinning, spun filaments and woven manufactures."

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284. Then upon all those articles enumerated, the provision that if the duty exceeds three-eighths per cent. it shall be reduced, does not apply?—No.

285. *Mr. Bowyer.*] Are ships obliged to pay anything on dropping anchor at Brunshausen?—They have merely to pay a fee for the boat taking the papers on shore that is attached to the treaty.

286. But there is no payment on dropping anchor, is there?—No.

287. *Sir James Graham.*] Is there any sea toll levied lower down than Brunshausen?—No.

288. Then the sole toll upon a vessel coming into the Elbe from the sea is the toll levied at Brunshausen?—Yes, that is on the lower Elbe; we have very heavy tolls on the upper Elbe.

289. That is above Hamburg?—Yes.

290. But between Hamburg and the sea this is the sole toll levied?—Between Hamburg and the sea this is the sole toll.

291. *Mr. Villiers.*] Is there any other inconvenience or expense to which British commerce is exposed, but those which you have stated?—No.

292. *Sir James Graham.*] Is there any inconvenience or expense incurred by British shipping that is not incurred by all other shipping entering the Elbe bound to Hamburg, except only Hamburg bottoms?—No.

293. *Mr. Grogan.*] That exception as to the charge on coal applies to all the river-bordering states as well as to England?—Yes, but the river-bordering states import no coal.

294. Are there any coals brought from Belgium?—None whatever.

295. The only coals imported are English coals?—Only English coals.

296. And it is no matter in what ships the coals may come, they are always subject to the higher duty?—Yes.

297. *Mr. Fenwick.*] They pay 2½ per cent. upon their value, while other goods pay at the rate of one quarter per cent. ?—They do not pay 2½ per cent., they pay by weight, but the charge amounts to so much.

298. But let us take the value; I understand that the Stade tolls upon coals amount to 2½ per cent. upon their value at the place of exportation?—Yes.

299. And do I understand you rightly to say that upon other goods it is only one quarter per cent. upon their value?—Yes.

300. Coals, in other words, paying something like ten times the toll on their value compared with other goods?—Yes.

301. *Sir James Graham.*] That is on account of their weight and bulk?—That is on account of their weight and bulk.

302. *Mr. Fenwick.*] We have it in evidence that the old toll was one-sixteenth per cent. upon the value?—Yes.

303. Except upon certain enumerated articles in the tariff?—Yes.

304. But I believe that in all cases where the merchant objected to the amount of the toll, he might go back to what was called the old rule, and have his goods pay one-sixteenth per cent. upon their value?—Yes.

305. When has England, either by treaty or otherwise, assented to the payment of 2½ per cent. upon the value of coal?—By the treaty of 1844.

306. I think that that treaty contains a provision for its abrogation by giving notice?—Yes.

307. Suppose that notice were given, the admission by the English of the payment of 2½ per cent. would cease, and the state of things would revert then to what it was before, namely, one-sixteenth per cent., is not that so?—No, I have stated before that this contested tariff of 1692 was never levied, it never came into operation.

308. Was it not the case, that up to the time of the convention of Dresden, or of the river-bordering States, in April 1844, there was a reference to the old rule of one-sixteenth per cent. upon the average?—No, it was upon paper, but the Hanoverian government never acknowledged that tariff.

309. We have it, I think, already in evidence that before 1692 the old rule of one-sixteenth per cent. existed?—It might have been so, but it was never acted upon; it was for the first time in 1821 or 1822 that Hanover ever produced a tariff.

310. In 1821 or 1822?—I believe so.

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311. *Mr.*

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311. *Mr. Grogan.*] Can you hand in a copy of that tariff of 1821 or 1822?—No, I have not got one.

312. *Mr. Fenwick.*] Then, am I to understand that England was no party to the convention of 1844?—No.

313. Is the Committee to understand that England has ever admitted the right of the Hanoverian Government to levy at the rate of 2 per cent. upon coals?—By the treaty of 1844 we have.

314. Suppose that treaty were got rid of, of course there would be no longer any admission of the right to charge 2½ per cent.?—Certainly not.

315. *Mr. Grogan.*] Can you say what was the charge upon coals previous to that treaty?—I do not know, but I should think it was quite as much.

316. How many ships laden with coal come to Hamburg in a year?—About 800.

317. What is the general consumption of the town for firing?—It is not alone the consumption of the town, it comprises all those coals which go further up.

318. But about what is the consumption of the town?—I do not know.

319. Is coal or wood generally used for fuel in Hamburg?—Coal is principally used.

320. Is the trade increasing in Harburg?—It is.

321. Is the number of ships going to that port laden with coal annually increasing?—Yes.

322. Then if those coal vessels go to Harburg, they are free from this 2½ per cent.?—Yes.

323. Does the principal part of the coal going to Hamburg, go into the interior of the country?—Yes.

324. *Mr. Villiers.*] Did you ever hear anybody say that those dues raised the price of goods?—Yes.

325. Do you think that the goods would fall in price, or that more goods would be introduced, and the consumption would be greater, if those charges were removed and those tolls ceased?—Since the abolition of the Sound dues, a great many goods which were formerly sent by Hamburg, are now sent to Stettin, and are forwarded by that route to the interior of Germany.

326. Do you mean that that is done because the Sound dues are removed, or because the Stade dues are paid?—If the Stade toll, and other tolls on the Upper Elbe were removed, they certainly would go to Hamburg.

327. Are you so sure of that?—Yes.

328. A little would depend upon their destination, would it not?—Yes; I do not mean to say that those goods which are intended for Stettin would be sent by Hamburg, but I mean that a great many goods which ought to be sent their natural course, which would be by Hamburg, are now, since the abolition of the Sound dues, sent by Stettin.

329. Then you think that if the Stade dues were removed, they would return to their natural course, namely, to Hamburg?—Yes.

330. *Sir James Graham.*] Are Newcastle coals of the same quality, dearer or cheaper in Hamburg than they were in 1844?—I cannot say; I do not know what the price was in 1844, that would depend upon the price of coal in Newcastle, and not upon the Stade toll.

331. But I wish to know whether you are aware of the fact; are they dearer or cheaper?—I believe they are dearer in general than they were in 1844.

332. *Mr. Grogan.*] You have stated that the tolls upon the upper part of the river above Hamburg are very considerable?—Yes.

333. Would the total abolition of the Stade tolls therefore turn the course of commerce, so as to bring it all back again to Hamburg, if the goods were going inland?—It would to some extent; it would be a great relief to trade; it certainly would be better if those upper dues were also done away with.

334. But would the abolition of the stade toll be sufficient to countervail the dues charged upon the upper part of the river?—To some extent it would.

335. *Sir James Graham.*] If Great Britain were disposed to purchase an exemption from Stade dues, would the river-bordering states join, and contribute to the purchase of that exemption?—I believe that Hanover would be very glad if such a proposal were made.

336. She would have to receive, but I want to know as to those who would have to pay. If we were to pay in part, would there probably be a contribution from



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from Hamburg and the river-bordering states towards purchasing the exemption?—Hamburg would certainly pay; the other states pay hardly anything to the dues; I find that 55 per cent. of the whole toll is paid by England; then there is the Brazils with 9 per cent., the Netherlands with 6 per cent., France 5 per cent., the United States 3 per cent., and then the proportions paid by other States go down to 12 per cent. and 1 per cent., and under 1 per cent.

337. Then the Hamburg consumers have to pay an enhanced price for the articles consumed in consequence of those tolls?—It is not always the consumer who pays it; it is as often the producer who sells the goods; take this very instance with respect to coals; if German coals could be sold cheaper than the English coals could, we will say one half per cent., then the consumer would buy German coals, and the English producer would lose the trade, unless he lowered his price.

338. Do they consume German coal in Hamburg; does it come in competition with English coal?—I do not think it does in Hamburg; but I understand that it comes in competition at Magdeburg, where a good many manufactories are.

339. In fact, the remission of the Stade dues would operate upon those heavy dues above Hamburg, would it not; if the Stade dues were abolished in any way by purchase or otherwise, that remission would operate upon those dues levied in the river above Hamburg, would it not?—No; they would remain just the same.

340. They would remain unchanged?—They would remain unchanged.

341. Then none but the vessels entering the Elbe and going to Hamburg and paying those dues would be affected; no other native would have an interest in the remission; Hamburg itself would not, according to your evidence?—Yes; because Hamburg is a maritime state, and has sea-going vessels.

342. But Hamburg bottoms have an exception in their favour now?—That amounts to very little, because the cargoes must belong to Hamburg citizens. The Stade toll interferes with the carrying trade; cargoes were formerly imported direct from the Brazils; that is, to some extent, done away with; they are now also imported from other places. For instance, a great many cargoes from the Brazils go for orders to Cowes; from there they are sent to Hamburg; but then they have to pay the toll. This Hamburg privilege, in fact, amounts, I believe, as I stated before, to four per cent. on the total receipts of the Stade toll.

343. Mr. Fenwick.] What proportion of the whole does Hamburg pay, because we understand them to be exempt if the cargo belongs to a Hamburg citizen, and is in a Hamburg vessel, it is confined to that, is it not?—Yes.

344. Is there any other cargo belonging to Hamburg or destined to Hamburg, which pays those dues?—All other cargoes do.

345. Will you state how much that amounts to?—It would amount to about 19 per cent.

346. It is the fact, I believe, that Hamburg is next largest to Great Britain?—The next largest to Great Britain is Hamburg.

347. Sir James Graham.] Great Britain is 55 per cent. of the whole?—You must divide that; you must take the cargoes and take the flags, and then it amounts to about 50 per cent.

348. Mr. Fenwick.] You think that Hamburg would be very glad to pay her proportion?—I think so.

349. Chairman.] I want you to explain more clearly the foundation of the opinion which you expressed, that, if we put an end by notice to the treaty of 1844, we should fall back upon the *status quo*, and be called upon to pay the dues that were payable between 1821 and 1844; and, also, I understood you to say that the Elbe-bordering States would be put into the same position. Now, I want you to explain how it is that our putting an end to the treaty between ourselves and Hanover would equally put an end to the convention which was made between the Elbe-bordering States; because that I cannot understand at the present moment?—I was misunderstood; I said that if the treaty between England and Hanover were renounced, then English goods would have to pay the tariff agreed to at Dresden in 1844, and those articles which pay only two-thirds of the dues would pay the full dues.

350. Under what stipulation in the convention do you think that that state of things would arise?—You mean under the treaty?

351. No; the treaty would be put an end to?—Yes.



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352. You say that then English commerce would be in the position that it would pay, as I understand you now, not the dues which English vessels would have been called upon to pay, under the declaration made by Hanover in 1821, and which was in force up to 1844, but would pay the dues which the river-bordering States pay under the convention?—Yes; because the Convention of Dresden has settled the question.

353. Will you point out to me what article there is in the Convention of Dresden which, in your opinion, involves that?—The first article says: "The arrangements with respect to the Brunshausen toll are recorded in the regulations hereunto annexed, which regulations will come into force on the 1st of October 1844, and cannot be altered without the common consent of the contracting States."

354. Then in your opinion that article applies not only to the ships of the Elbe-bordering States, and the cargoes imported in those ships, but to all ships whatever passing up the Elbe?—Most decidedly.

355. Sir James Graham.] Are vessels allowed to break bulk at Hamburg before the toll is paid?—According to the arrangement with the shipbrokers they may, because the Government take the guarantee of the shipbrokers; but by the treaty they are not.

356. In point of practice do they break bulk before the toll is paid?—Practically they do.

357. Mr. Villiers.] There is some person who guarantees the payment—the consignee?—Yes; the Hamburg shipbroker in Hamburg. It is the custom that every ship is addressed to what is called a broker there.

358. Sir James Graham.] The cargo being consigned to a broker, the ship may break bulk, in point of fact, immediately upon its arrival?—Yes.

359. Mr. Villiers.] There is no duty on leaving the Elbe, is there?—No; but they get what they call a return ticket.

360. What does that mean?—They get a return ticket, which they have to deliver at Brunshausen, which shows that they have paid the toll. On leaving the port they get a ticket at the port of Hamburg, which they have to deliver at Brunshausen.

361. Can you state the amount which the Hanoverian Government collect in this way altogether?—About 36,000*l.*, or I should say about 40,000*l.*; because I only know the amount of goods which have exclusively been landed at Hamburg; whereas there is another port at Altona, but I do not know the amount there. I should say it is about ten per cent. more than the Hamburg receipts are, taking it altogether. But the Hanoverian Government have never published their amounts; they keep that very secret.

362. If the English Government were to redeem those duties by a payment to Hanover, and we should enter the Elbe free, that would give us an advantage, would it not, in carrying goods?—Yes.

363. And it would almost compel other States, would it not, to come in?—Yes.

364. Sir James Graham.] Are there any Hanoverian Custom-house officers at Hamburg?—Yes.

365. Do they hinder the unloading of vessels with reference to payment or the non-production of the ship's papers?—No such cases have been known in later years since there has been an agitation of this question; the Custom-house officers have been very liberal, and have left things alone.

366. The Hamburg ship brokers sometimes find it convenient to delay the unloading of cargoes, do not they?—No, I have never known of such instances.

367. Then any statement such as this, that the Hamburg ship brokers have the ship's papers detained, whenever press of business prevents their clearing the vessels so rapidly as the masters desire, you think is not well founded?—I have seen that statement, and I think it is not well founded; it is a mistaken notion altogether.

368. Whether that is true or not, you say the Hanoverian Custom-house officers at Hamburg are not the persons who cause detention of the vessels?—No, I have never known an instance.

369. Mr. Grogan.] Do you know anything about the trade at Harburg?—Yes.

370. Are there any other advantages with reference to foreign trade at Harburg over that at Hamburg, beyond the non-payment of toll?—No.

371. Have they the same facilities as to quays and wharfs at Harburg as at Hamburg?—They have not to a certain extent, because the branch of the Elbe

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which leads up to Harburg is very shallow, and most of the vessels cannot get up there with a full load, and therefore they have to unload a part of their cargo in the open river.

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372. That, of course, entails expense of lighterage?—I should say so.

373. Does the expense of lighterage, such as you have described, more than compensate for the non-payment of toll?—That I cannot say; I do not know.

374. *Chairman.*] Is there any toll paid upon the return of vessels from Harburg to the sea?—No.

375. In no case?—In no case.

376. What is the meaning of taking a return toll ticket, of which I observe you spoke?—Formerly they were obliged to give the return ticket to the guardship; now they deliver it to the toll-house at Brunshausen; it is a receipt showing that you have paid the toll, otherwise they will not allow you to pass.

377. Then it is merely a receipt for the toll paid at Harburg?—That is all.

378. Were there any other tolls before the convention of 1844 that were levied at Brunshausen?—Yes; I believe there were some other tolls, but they are done away with.

379. Those are all done away with?—All done away with.

380. *Mr. Villiers.*] Are you quite satisfied that there is no service whatever rendered by the Hanoverian Government in return for the toll?—Nothing whatever.

381. Nothing done to facilitate the navigation; no security offered?—Nothing at all.

382. *Chairman.*] Can you inform the Committee by what instrument, whether by convention, or declaration, or what it was, that Hanover gave to the Elbe bordering states the same privileges that we obtained under the treaty of 1844?—It was by what they call a Government decree; I have not got that document with me.

383. In your opinion, if we put an end to the treaty of 1844 between ourselves and the Hanoverian Government, that advantage would equally cease to be enjoyed by the Elbe-bordering States?—Certainly, on British manufactured goods.

384. *Sir James Graham.*] You say that Hanover has done nothing for the improvement of the navigation of the River Elbe?—I state so.

385. Are there not some large works upon the left bank of the Elbe which protect the country, and secure the navigability of the river?—There are no large works; there are works that secure the country, but they have nothing to do with navigation.

386. Have they not the effect of preventing the inundation of that country, and thereby preserving the depth of the channel?—No; the fact is the navigable channel is not at all on the Hanoverian side; it is on the Danish side.

387. Then any statement that Hanoverian works on the left bank practically keep the navigable channel deep, is an erroneous statement?—It is.

388. *Chairman.*] Are there any port or harbour dues payable at Harburg?—Yes.

389. By all vessels equally?—By all vessels equally.

390. Can you state what they amount to per annum?—I stated to the Committee before that the Harburg Government spend about 20,000 *l.* a year for keeping up the navigable channel of the river, and the harbour dues amount to about 7,000 *l.* a year; but I may state at the same time, that vessels going up to Harburg, having all the advantage of this navigable channel, do not pay a sixpence, because they do not come to Harburg.

391. *Sir James Graham.*] Have the works at Harburg had an advantageous effect upon the channel?—No; the works at Harburg have nothing to do with the navigable part of the Elbe, because it lies on the other side of the river.

392. Have they had no indirect effect upon the channel to Harburg?—No, the navigable channel of the Elbe goes up from Cuxhaven as far as Harburg, and all the buoys and lighthouses, and so on, are sustained by Harburg; and about two miles before you come to Harburg, there is a branch which leads up to Harburg.

393. *Mr. Grogan.*] Then is it for the lights and buoys that the expenses which you spoke of, amounting to 20,000 *l.* a year, are incurred?—Yes.

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394. Is there anything else in the way of deepening the channel, and dredging and so on?—There is dredging included in the sum.

395. At Brunshausen are there any police to keep order on the water among the vessels?—No.

396. None whatever?—No; I do not know that they have any police; they have a battery there; but they have no guardship there now; that has left.

397. Can you speak of your own knowledge whether any number of vessels be at any time at anchor under the battery?—I cannot say.

398. Sir *James Graham*.] Does that battery command the channel?—Yes.

399. Can it force any vessel to bring to?—Decidedly.

400. Mr. *Grogan*.] It is only for the purpose of collecting toll, not for the purpose of enforcing order among the ships?—No.

401. Sir *James Graham*.] Then Hanover does command the navigable channel of the Elbe up to Hamburg?—Certainly, near Brunshausen.

402. Lord *Ashley*.] How long is a vessel detained at Brunshausen?—I cannot say that.

403. *Chairman*.] Will you point out to me in the convention any article whatever on which you ground your opinion, that if we put an end to the treaty of 1844, the Elbe-bordering States will cease to pay what they now do under the declaration of the Hanoverian Government, made after our conclusion of the treaty?—I am not quite certain that I understand your meaning.

404. At present England has the privilege of paying one-third less for British goods that go to Hamburg in British bottoms?—Yes.

405. You say, by a declaration afterwards made by the Hanoverian Government, the Elbe-bordering States equally have the right of paying one-third less upon the importation of British manufactured goods in bottoms belonging to the Elbe-bordering States?—Yes.

406. I understand you to say that if we put an end to the treaty, we shall lose that advantage; but equally the Elbe-bordering States will lose the advantage secured to them by the declaration of the Hanoverian Government?—Yes.

407. I want you to point out what there is in the convention upon which you found that opinion?—I cannot point it out in the convention, because the convention cannot speak upon a subject which had not happened when the convention was made.

408. But it might contain words or stipulations which would be applicable to such a state of things?—But it does not contain such words.

409. Then upon what do you found your opinion?—As soon as the English treaty is done away with, upon which the decree that I am talking of is founded, it is natural that the decree also loses its power. If the decree says, Because we have granted to England so and so, we grant you the same; then if you withdraw the first, certainly the other is also withdrawn.

410. I understand that you have not got that declaration here, so as to enable us to refer to the exact words?—I have not the declaration with me, but I am satisfied it is to that effect.

411. Then you assume that the declaration of the Hanoverian Government is in that form; that it, in fact, conveys the privilege to the Elbe bordering states contingent upon the continuance of the same privilege to English vessels?—I think it is contingent; but I shall refer to the decree.

412. Mr. *Bowyer*.] Does the decree say that the Elbe-bordering States shall have that privilege so long, and only so long, as the English enjoy the same privilege?—I cannot state the exact words, because I have not seen that decree for some time.

413. Is it to that effect?—I will refer to it, and let the Committee know.

414. Sir *James Graham*.] Can you obtain for the Committee from Hamburg a copy of that decree?—I dare say I could procure it here.

415. Then will you at the next meeting lay a copy of the decree before us?—I will try to do so.

416. Mr. *Bowyer*.] You do not mean to say that because the reason alleged for a law, or the reason recited in a law, has ceased, that therefore the law necessarily becomes of no force?—If a thing is granted to a principal, and afterwards granted to another contingently upon that, then if it is withdrawn from the principal, in my opinion it is also withdrawn from the other.

417. *Chairman*.] Am I to understand you to say, that if the treaty with England

England were put an end to, there would be no power in Hanover voluntarily on her own part to remit any part of her rights in reference to the Stade dues in favour of the Elbe-bordering States?—I think she would have no right to do so.

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418. What would prevent her?—She would not make any alteration; why should she?

419. I do not ask you that, but could she if she pleased?—She might to-morrow make a treaty with another power.

420. If that be so, if she would have the right of voluntarily remitting any part of her rights with reference to the Stade dues affecting the Elbe-bordering States, would it not be the case, if we put an end to the treaty, that we should have to pay the full dues, whilst the bordering States would pay one-third less?—I do not think she could do that.

421. What is there in the treaty or public law to prevent her?—Because there must be a difference drawn between a convention and a treaty; from this treaty the Elbe-bordering States can never get released; for instance, the Hamburg Government would like to make a separate treaty with Hanover about the Stade toll, but they cannot do so.

422. *Sir James Graham.*] How many contracting parties are there in the Elbe-bordering States?—There is first, Austria, then Prussia, Saxony, Hanover, Denmark, Mecklenburgh, Anhalt, Anhalt-Dessau, Anhalt-Bernburg, Lubeck, and Hamburg.

423. How many is that?—Eleven.

424. They are bound interchangeably, one with another?—Yes.

425. And no two of them could vary the agreement as between each other without the concurrence of all?—No.

426. Therefore, the abrogation of the treaty with England would not lead to the abrogation between those 11 powers unless all the 11 concurred?—According to the convention, but not including this decree of which I am speaking, because that was never signed by the others; that is not in the convention.

427. But, if the treaty with England were abrogated, Hamburg and Hanover could not come to a similar arrangement without the concurrence of the other river powers?—No.

428. *Chairman.*] But, if Hanover agreed to remit a portion of those dues to all the parties, to which of course they would all accede, then your argument would not apply?—As soon as they reduce the river dues, then they must charge all the other nations just the same; it is impossible. This is the curious state of the Stade toll; there is a convention making it a river toll, and then, when they treat with England, they call it a sea toll; they turn round just as they like.

429. *Mr. Fenwick.*] Am I to understand you to say that the convention made it a river toll?—Yes.

430. Or was not it rather that the Hanoverian Government admitted it to be a river toll when that convention was made with the river-bordering States?—No; the state of the case is this: Hanover had always objected to the Stade toll being called a river toll; but when they found, in 1844, that it would not do any longer to have it a sea toll, then they made it a river toll.

431. They made it a river toll; that is, by admitting it to be so, and so held a convention of the river-bordering States under the Treaty of Vienna?—Yes.

432. Immediately after that convention was held and the tariff published, what was the position of England with reference to the toll, seeing that England was no party to the convention?—I find, in that treaty, it is left an open question,

433. But we are talking of the convention which is before the treaty; will you confine your attention to the state of England with reference to the Stade toll immediately after the convention of 1844, and before the treaty with England?—I have to say, in the first instance, that the convention did not come in force before this treaty was concluded.

434. Is there anything in that convention which leads to that supposition?—I know that the convention was not ratified by the States before the treaty between England and Hanover was ratified; you will, in fact, find a protocol at the end to that effect: "Protocol of a conference held at the Foreign Office, 9th August 1844."

435. What Foreign Office?—Here, in London.

436. What is the nature of it?—It says here, "that consequently it was possible

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sible that its stipulations," that is, the convention of 1844, "might not come into operation by the 1st of October next, the date at which, by the 6th article of the treaty of the 22d July, his Hanoverian Majesty engaged that the rates of tolls and charges specified in the said convention of the 13th of April, and in the documents annexed thereto, should become applicable to British vessels and their cargoes, and that, in such case, his Hanoverian Majesty would be unable to fulfil such engagement at the time stipulated."

437. No doubt that had reference to the treaty which was almost then entered into; but I want to know how it is that England, previous to the treaty, was bound at all to pay the Stade tolls upon the principles laid down in the convention?—The Stade toll has been a contested question between England and Hanover.

438. Just so, and of course, when the treaty was made, England bound herself to pay certain dues mentioned in the treaty, which dues were a modification of those stated in the convention?—Yes.

439. But before that treaty, I want to know what was the position of England with regard to this Stade toll, that is the state of the question, suppose that this treaty had never been entered into?—Suppose this treaty had never been entered into, England would then have paid according to the convention of 1844.

440. How is England bound by that convention?—I do not think she is bound by it, if you ask me that question. That is a different question altogether.

441. What are the grounds which have brought you to the conclusion that England is not bound by that convention except for the treaty?—Because, as far as I know, the English Government always maintained the principle, that only one-sixteenth of the tolls should be paid.

442. *Sir James Graham.*] England was a party to the treaty of Vienna?—Yes.

443. The treaty of Vienna gave to the river-bordering States certain powers of regulating river tolls?—Yes.

444. England by the treaty of 1844 recognised the Stade toll not as a sea toll, but as a river toll?—I do not think she did; I do not find that; I find that nothing is said about that; it merely says in the article, that "from and after the 1st day of October 1844, no other or higher duties or tolls shall be levied as regards the tolls or charges known by the name of the Stade or Brunshausen toll." I do not find one word about river toll.

445. *Mr. Fenwick.*] Then, from what you have read, do you think that there is anything in the treaty of Vienna which makes England liable to the consequences of the convention of the river-bordering States?—If you enter into that question, the question always comes, What is the Stade toll? Is it a sea toll or a river toll? If it is a river toll, then it ought to be paid both for vessels entering and leaving the Elbe; if it is a sea toll, then it is a question between the maritime powers.

446. Are you not aware that, for some years after the treaty of Vienna, a clause in which treaty empowered the river-bordering States of each river to regulate it, Hanover persisted in denying that the Stade toll was a river toll at all?—Certainly she did.

447. She denied that it was a river toll at all?—Yes.

448. And therefore was not liable to the provisions of the treaty of Vienna regarding rivers?—Certainly.

449. Are you not aware that at a subsequent period she admitted that it was a river toll, and that the consequence of which admission was that the river-bordering states sat, and a convention was made?—I am fully aware of that.

450. Do you know whether, that being so, it brought the convention and its consequences under the treaty of Vienna?—Yes, certainly, as far as the Elbe-bordering States were concerned.

451. I presume you know that Great Britain was a party to the treaty of Vienna?—Yes.

452. In your opinion, does that fact bind England to the consequences of the convention of Dresden, which took place in consequence of the provisions of the treaty of Vienna?—I do not think so; because I think that the declaration of the Elbe-bordering States that the Stade toll is a river toll is not in compliance with the Vienna Act.

453. *Sir James Graham.*] As I understand your evidence, you say that there

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is nothing in the treaty between England and Hanover made in 1844, which, in terms, recognises the Stade dues as a river toll?—I read to you the words.

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454. Then it will be a matter of inference from national law whether the treaty of 1844, and usage under it from that to the present time, constitute a recognition by England of that river toll?—Certainly.

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455. It is not a matter of express stipulation by the treaty, but it is a matter of inference from international law?—It would be an open question.

456. *Mr. Bowyer.*] What is there to show any acquiescence on the part of England in the position that it is a river toll?—I did not say so; I said just the contrary.

457. Is there anything to show that England acquiesced in the position that it was a river toll and not a sea toll?—I never found anything to that effect.

458. *Chairman.*] If it is a river toll, it will be subject to the stipulations of the treaty of Vienna?—Yes, certainly.

459. Under the stipulations of the treaty of Vienna the navigation is to be quite free, and there are to be no tolls, except for the preservation of the navigation of the river?—According to the treaty of Vienna, the treaty says the navigation shall be free, but practically it is not so. The fact is, that at the present moment, the navigation of the Elbe is not as free as the navigation of the Danube. But I should state at the same time that the Elbe-bordering States now say that they are not bound any more by the Act of Vienna; but that they are only bound by those different river Acts which they have made in compliance with the Vienna Act.

460. In compliance with the treaty of Vienna, they can only make such regulations as shall, consistently with the freedom of the river, be necessary for the maintenance of the police of the river; is that so?—Yes; and there are other words in the treaty of Vienna: “On ne partira néanmoins, en dressant le tarif, du point de vue d’encourager le commerce en facilitant la navigation.” Now I think that the powers who signed the treaty of Vienna have a right to ask them to conform to this. I think that England ought to complain of those enormous dues which are levied on the Upper Elbe.

461. *Mr. Bowyer.*] You mean that the dues are contrary to the spirit of that provision of the treaty of Vienna which you cite?—There is nothing of the spirit of the treaty of Vienna in them.

462. *Sir James Graham.*] I understand you that if England got rid of the Stade dues, you think she would have a still stronger complaint against the dues levied in the Upper Elbe?—I think she would.

*Martis, 15<sup>o</sup> die Junii, 1858.*

MEMBERS PRESENT.

Lord Ashley.  
Mr. Blackburn.  
Mr. Bowyer.  
Mr. Fenwick.  
Mr. Seymour Fitzgerald.

Mr. Milner Gibson.  
Sir James Graham.  
Mr. Henley.  
Mr. Villiers.

THE RIGHT HON. JOSEPH WARREN HENLEY, IN THE CHAIR.

*John Hargreaves, Esq., called in ; and further Examined.*

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*Vide Appendix.*

463. Mr. Fitzgerald.] IN reference to the evidence which you gave the other day, is there anything which you wish to add or correct at all?—The Committee wished me to hand in two decrees, which I have translated; the decrees of the 8th and 26th September, by which other produce obtained the same privileges that British produce has—(*handing in the same*).

464. Beyond the fact that the concession made to England is recited in the first of these decrees in a kind of preamble, and that the first decree is simply recited in the preamble of the second, do you find anything in the terms of that decree which would prevent the Hanoverian Government from continuing the exemption to all the river bordering states; supposing that we, by putting an end to the treaty, were ourselves to lose that benefit?—That is what I want to explain to the Committee; if the Committee will allow me, I will just read the first part of this decree, which says, “The dues levied on goods at Brunshausen shall, upon the first of next month, be reduced to the amount specified in the above-mentioned treaty;” that is the English treaty. “First, for the goods specified in that article of British, German, or Prussian origin, if they pass the toll line in British, German, Prussian, Swedish, Norwegian, or Belgian vessels. Secondly, for the same goods of the origin of the United States, if imported into our kingdom in American vessels, or in the vessels belonging to the nations named in Article 1. Thirdly, for the same goods of Mexican origin, if imported into our kingdom in Mexican vessels, or in vessels belonging to the nations named in Articles 1 and 2.” Now I want to explain one point to the Committee. I was asked the other day if the treaty with England were renounced, whether the other States would retain the privileges which were granted to England by that treaty. I am of opinion that, according to this decree, goods of German and Prussian origin will only pay two-thirds of the tolls, even if the treaty with England is renounced; but that, the Committee will understand, is of no practical value whatever, because no German or Prussian goods are imported by sea. The only practical question which would arise would be this: Whether, in future, if the English treaty was renounced, British goods imported in German, Prussian, Swedish, Norwegian, or Belgian vessels would pay only two-thirds of the dues, while the same goods imported in British vessels would pay the full dues; that is the only practical question. Now, that is impossible, because as soon as the treaty with England is renounced, the reduction granted to British goods ceases.

465. If the treaty between England and Hanover were put an end to, yet the treaty would then remain sufficiently a matter of record that it would be a record of the amount paid as a matter of fact embodied in that decree for the benefit of those States in whose favour it was made?—Yes; it would remain in favour of those States; that is to say, that goods of German and Prussian origin would only pay two-thirds toll; but that is practically of no value whatever.

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466. Will you point out in the decree the terms upon which you rely to support your opinion, that as regards British goods imported in German or Prussian bottoms, the privilege of paying two-thirds will cease?—The preamble says: "Whereas Article 6 of the Treaty of Commerce and Navigation with the Government of Great Britain, which treaty was made public by our patent of to-day, grants certain privileges to British goods and ships with reference to the Brunshausen toll; we decree, in consideration of the relations of commerce and navigation existing with other states, as follows." It is quite clear that the treaty with England gives certain privileges to British goods; when that treaty is withdrawn, then the privileges given to British goods cease; that is as clear as possible.

467. *Mr. Villiers.*] Does that treaty go on to say that the same privileges shall be extended to other states which are conferred upon the British?—It says, "We decree, in consideration of the relations of commerce and navigation existing with other states, as follows;" then comes what I have read: "The dues levied on goods at Brunshausen shall, upon the first of next month, be reduced to the amounts specified in the above-mentioned treaty."

468. Being the same as upon British goods?—Being the same as upon British goods. The Committee will understand that as soon as the treaty is renounced, the privilege upon British goods ceases. As to the privilege given to German and Prussian goods, it is, as I explained, of no practical value whatever.

469. But it is in consideration of the reduction upon British goods that they reduce the charge in the same way on goods brought in Prussian or German vessels?—Certainly; as far as the second article goes, which refers to goods of the United States, the Committee will see that that is of no value whatever; for it says, "For the same goods of the origin of the United States, if imported into our kingdom in American vessels, or in vessels belonging to the nations named in Article 1."

470. That is only by going to Harburg?—Yes.

471. They can go by Harburg, and pay no duty at all?—Yes.

472. It is the same with every country, is it not, that they can go to Harburg, and pay no duty at all?—It is the same with every country; I merely want to point out to the Committee that those two parts of the decree are of no practical value whatever since Harburg has been exempted from the dues.

473. *Mr. Fenwick.*] In case Prussian goods were introduced in Prussian vessels, two-thirds only would be paid; is not that so?—It is so; but practically it will never arise, because none are introduced.

474. You say practically that has no effect, because no Prussian goods are introduced in Prussian vessels?—No; Prussian goods are imported by land.

475. *Mr. Villiers.*] What do you suppose would be the effect of the redemption of these dues by England; suppose England were to enter into fresh terms with Hanover, by paying Hanover a sum of money, in redemption of the Stade dues; what is then her relation with other states; the treaty is at an end, and no duty to be paid upon English goods; could the other States claim as a right that no dues should be paid upon goods introduced in their ships?—Certainly not, if England were to redeem them by paying something.

476. But have they not got some arrangement with Hanover, that they are to be put upon the same footing as any other country?—Yes; but even upon the clause as to the most favoured nation, if there is an equivalent given for a privilege by one nation, then the other nations must give the same equivalent to be upon the same footing.

477. That you state as a general rule?—That I state as a general rule; if an exemption is given for nothing, then the other nations get it; but if something is given for the exemption, then the other nations must also give something.

478. As far as you know, what would the other states be ready to do; if we redeem the dues charged upon us, would they be ready to pay a sum in proportion to what they now pay as dues?—I should say some of them would; I cannot state as to all the States, but Hamburg would do so.

479. You consider that Hanover would claim and have a right to levy the dues still upon those States, if they did not come into those terms?—Most decidedly; as much right as she has now to the dues, she would have then.



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480. Do you believe that if we were to redeem the dues, the navigation of the Elbe would be entirely free?—It would be free then as far as Hamburgh.

481. *Chairman.*] Upon whom does the incident of those tolls fall; upon the importer of the goods, or upon the consumer, the purchaser of the goods; in your opinion does it fall wholly upon the one or wholly upon the other, or partly upon the one and partly upon the other?—It is my opinion that it falls as much upon the producer as upon the consumer; because taking, for instance, English goods, if they come in competition with German goods, the Stade toll might press so heavy upon them that they could not be sold in competition with German goods, and then it would fall upon the English producer.

482. *Mr. Villiers.*] The German goods paying likewise?—German goods coming from the interior cannot pay toll.

483. *Chairman.*] I understand you to say, that you think it falls partly upon the one and partly upon the other?—I should think it must fall partly upon both; but it always depends as to whether it falls more upon the producer; that is a question of competition.

484. *Mr. Villiers.*] Do you think that the Stade tolls increase the price of any goods?—Most decidedly.

485. Do you think that coals are dearer in consequence of the dues that fall upon them?—I have already stated to the Committee that the dues upon coals amount to 2  $\frac{1}{4}$  per cent.

486. That is the amount of the dues upon the value of the coal?—Yes.

487. Do you think that coals coming exclusively from England are charged dearer in consequence of those dues?—Of course they are.

488. Do you think that affects the consumer, seeing that we have the exclusive supply of the coal?—I have explained to the Committee that German coals come already in competition with English coals.

489. German coals?—German coals.

490. Where do they come from?—From Silesia and Westphalia.

491. Then England has not got the exclusive supply of coals?—To Hamburgh she has, but not to Germany. But as to the question whether the toll falls entirely upon the consumer or upon the producer, if England was the only country that produced them, certainly it would fall upon the consumer; but as there are other countries that produce coal also, the toll falls upon the English producer.

492. *Mr. Fenwick.*] Do not English coal and Belgian coal come into competition in Germany?—Yes; I explained that the other day.

493. Of course the Stade toll paid upon the English coal is, to that extent, an injury to the producer of coal in this country?—Most decidedly.

494. *Chairman.*] To what extent do the Belgian coal and the German coal come into competition with English coal at Hamburgh; what is their relative amount?—I am not prepared to give statistics upon that question.

495. If you cannot give an accurate statement, are you aware or not whether they amount to such an extent as really to come into competition with English coal?—I am satisfied that German coals come into competition with English coals.

496. Are they one-fourth part or one-tenth part or what?—I cannot speak to the amount; but they do come into competition, and you are aware that when things once begin to come into competition, they either go on, or they lose ground.

497. If you can give me no idea as to whether it is one-fourth or one-tenth or one-twentieth part, upon what basis is it that you come to the conclusion that there is competition between them?—Because I consider that with an article, where there was formerly no competition, if the competition once begins, it will very soon be a serious thing, particularly with such an article as coals.

498. You have stated, I see, in your former evidence, that, owing to the taking off of the Sound dues, certain goods have gone elsewhere that used to come through the Elbe?—Yes.

499. And that you think that if the Stade dues were taken off, that trade would return?—Part of it would.

500. Does that part of the trade which you say has been diverted, go to the north or to the south of the Elbe?—It goes to the Baltic.

501. That is to the north?—That is to the north.

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502. Is Harburg more or less convenient for goods to pass to the north than Hamburg?—I stated that a part of the trade had entirely left the Elbe and gone to the Baltic; now you ask me to state if Harburg is conveniently situated for sending goods into the interior of Germany.

503. You have stated in your former evidence that, owing to the taking off of the Sound dues, the trade which used to go through the Elbe has now gone to the Baltic; to Stettin, I think you said?—Yes.

504. You have stated also that if the Stade dues were taken off, in your opinion trade would return to the Elbe?—I say a part of it would.

505. Now I ask you whether that trade has not the facility of going through Harburg in relation to the railway communications, and paying no toll upon it at Stade?—No; because it would have to pass the Elbe again; that part of the trade which is gone to Stettin is with the other side of the Elbe; for instance, with Berlin; if you sent goods to Harburg, they would have to cross the Elbe again.

506. Coming from the Baltic, have they the same inconvenience of crossing the Elbe or not?—No; they do not cross the Elbe at all to that part of Germany.

507. Still I understand you to say that you think the trade which now goes into the Baltic, instead of coming into the Elbe on account of the Stade dues, if the Stade dues were to be taken off, would come back again into the Elbe from the Baltic?—Yes; if the Committee will allow me, I will put in a statement to that effect.

508. That is what I wish to see?—Here is a circular from some Hamburg merchants, which I will put in, which gives you an explanation upon that point.

509. In putting in that circular from some Hamburg merchants, are you prepared to verify it?—I am prepared to verify it, because I know it has been issued.

510. But you only put it in as a printed circular of some German merchants; are you prepared to put it in in your official capacity?—No, I will not put it in in my official capacity.

511. Are you sure of its accuracy?—I am sure of its accuracy.

512. Have you tested its accuracy?—Yes.

513. How have you tested its accuracy?—By making calculations myself and going into them.

514. Then why do you object to put it in upon your official responsibility?—Well, I do not object to that; I will put it in upon my own responsibility.—*(The Witness delivered in the same.)*

515. Can you give the Committee any information as to the state of trade in Hamburg and Harburg?—The trade between Hamburg and Harburg do you mean?

516. The trade coming into the Elbe, as to what proportion of it now goes to Harburg, and what proportion of it goes to Hamburg; what relation they bear to each other?—I am not prepared to give that information now, but I could furnish you with it.

517. Mr. Villiers.] Can you state what sized vessels can go to Harburg; we understand it is much shallower water than at Hamburg?—It is much shallower water; I should think vessels not drawing above ten to twelve feet.

518. Chairman.] Are you prepared to say whether the number of vessels with goods going to Harburg has increased or not?—To Harburg the number has increased very much.

519. That you can state?—That I can state. I have prepared a very short statement to prove the effect in figures of the treaty of 1844, how the English trade was before and under the treaty, if the Committee will allow me to put it in; it is a very short statement.

520. What is the nature of the paper?—The nature of the paper is the following: "No doubt the treaty of 1844 with Hanover was concluded with a view to lessen the burden imposed by the Stade toll on British trade and shipping; but it will be perceived, from the following statistics, that such expectations have not been realised." First, as to the proportion in which cargoes from various countries contributed to the Stade toll. Prior to the tariff of 1844, and during the five years from 1839 to 1843, Great Britain paid 45 per cent.; since the tariff of 1844, and during the five years 1846 to 1852, Great Britain paid 52 per cent. During the five years 1851 to 1855, she paid 57 per cent. Holland paid,

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paid, in 1839, 11 per cent. ; in 1846, 10 per cent. ; in 1855, 7 per cent. The South of Europe and the Levant paid 10 per cent. in 1839, 11 per cent. in 1846, and 8 per cent. in 1855. Then the other European countries paid six-tenths per cent. in 1839, seven-tenths per cent. in 1850, and eight-tenths per cent. in 1855. The United States and other transatlantic countries paid 29 per cent. in 1839, 23 per cent. in 1850, and 24 per cent. in 1855. The dues levied upon British cargoes shipped during the five years from 1839 to 1843, amounted to 71,000 *l.* ; from 1846 to 1850, 67,600 *l.* ; and from 1851 to 1855, they amounted to 92,000 *l.*

521. Mr. Fitzgerald.] Do not those figures show that, subsequently to the Treaty of 1844, British commerce greatly increased?—So they do ; but at the same time they show that England pays a larger proportion to the dues now than she paid prior to 1844.

522. But still it shows, in fact, does not it, that the diminution of the burden upon British commerce was such that, although the dues were less, the trade itself increased so very much that the aggregate sum paid was larger?—It may show that to some extent ; but it shows, at the same time, that all the other nations can evade the Stade toll by some means, but that England cannot.

523. How does it show that they evade the Stade toll?—It shows it, because the railroads, for instance, from France and from Belgium bring a great many goods from those countries ; but those are lighter goods.

524. Chairman.] That is not an evasion of the toll, because that is taking goods by another route?—It shows that the toll presses the hardest upon English goods, because English goods must come by that route.

525. According to the figures which you have read, it shows this, that in spite of this toll, English commerce has perpetually gone on increasing, not only in relation to other countries, but absolutely ; that is so, is it not?—The trade no doubt has been increasing, but at the same time you will find from the return that England pays per hundred British tons more Stade toll than any other nation does. Taking the average cargoes of English goods, I find that England pays more per hundred British tons than any other goods from any other countries pay.

526. That must arise from the different nature of the cargoes, I suppose, does not it?—There certainly is a difference in the nature of the cargoes ; it shows that as to the Stade toll, bulky articles pay the most, and as we all know that British goods are bulky articles, it becomes evident that English goods pay more than other goods pay.

527. That is owing to the different nature of the cargo?—That is owing to the bulky nature of the cargo ; you are aware that the tariff of the Stade toll is by weight and not by *ad valorem*.

528. Mr. Fitzgerald.] I understand you to say by that statement, that whereas we paid 71,000 *l.* in the first period, in the subsequent period we paid 92,000 *l.*?—Yes.

529. And that contemporaneously with that there has been a reduction in the duties?—Yes.

530. Does not that prove that British commerce must have enormously increased when there has been contemporaneously with an increase of 20 per cent. in the amount which we pay, a reduction of 33 per cent. upon the tariff under which that amount is paid?—Yes ; but the Committee will understand, that if the Stade toll had entirely ruined the British trade to the Elbe, there would be no use in talking any more about it ; it would be too late ; statistics cannot prove everything. No doubt the trade to Hamburgh from England has increased, but at the same time that will not show that the Stade toll is not a heavy burden, and it does not prove that the trade would not have increased much more if the Stade toll had not existed at all.

531. I understand that you read that statement to prove that the effect of the alteration in 1844 was disadvantageous to British commerce, and at the same time you read figures which prove that British commerce has increased something like 20 per cent., or has paid a sum larger by about 20 per cent. than it did in the first period, although the dues were reduced 33 per cent.?—Those figures show certainly, as you say, that the trade has increased.

532. Must there not be a very enormous increase when such are the figures?—There has been a large increase no doubt.

533. Mr. Villiers.] Do you connect it at all with the reduction of the Stade dues ;

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dues; are there no other reasons to account for the increase of the trade; do you know that our commercial relations with the North of Europe changed between 1844 and 1846?—The whole English trade has increased immensely since those years. If you merely look at the fact that England paid 71,000 *l.* in 1843, and pays now 92,000 *l.*, you might as well say that the Stade toll is no burden at all.

534. How are you to prove your case by what you have stated, unless you admit that, with the reduction of the dues, the trade increases; if it was the case that the trade increased according to the reduction of the dues, the trade would increase very much more if the dues were abolished altogether?—Yes.

535. But as you cannot prove that the trade is reduced because the Stade dues are reduced, we are in the position not to draw any conclusion from what you say?—What I want to explain to the Committee is this, that I find that England is every year paying more towards the Stade toll, and it may come to pass some of these days that England pays the whole toll.

536. By the increase of her trade?—Not alone by the increase of her trade, but because, as I have explained to the Committee, other goods can be sent by other routes, by which it is impossible for England to send her goods.

537. *Chairman.*] You say that Belgian and French goods may be sent other ways; has not the decrease been considerable as to the United States?—Yes; I can account for that.

538. Will you state the figures of the United States?—The United States and other transatlantic countries paid 29 per cent. in 1839, and now they pay 24 per cent., but I can explain that.

539. How?—Because there are a great many goods which now come to Hamburgh which do not come direct from transatlantic places, but which are bought in the Channel; there are a great many vessels going for orders to Cowes; the goods are sold there to Hamburgh, and then they appear as coming from Great Britain.

540. *Mr. Villiers.*] That applies to goods coming from other countries also?—Coming from the Brazils; the vessels go for orders to Cowes; they would be sold there and sent to Hamburgh, and then they would appear in the Hamburgh imports as coming from Great Britain.

541. *Chairman.*] Then that statement which you have got does not prove much one way or the other; it will not prove the increase of the British trade, properly so called, because you say the United States' decrease is to be accounted for in consequence of the goods being transhipped, and coming in English bottoms?—I think that statement of mine will prove that the Stade toll presses the hardest upon English cargoes, and upon the English carrying trade.

542. Can you state what the whole value of imports into Hamburgh is?—The whole value of the Hamburgh imports amounts to about 2½ and a half millions by sea.

543. From this country?—No, from this country to about 12,000,000 *l.*

544. How do you get at that fact?—I get it from the statistical tables published in Hamburgh.

545. Then your opinion is that the trade of this country is of that value?—Yes.

546. What is the per-centage of toll levied upon that?—That I cannot state, because the toll is not levied only upon imports at Hamburgh, but upon imports in other Elbe ports.

547. *Mr. Villiers.*] They are not all levied according to the value, are they?—No.

548. *Chairman.*] What I want to know is, if 12,000,000 *l.* is the value of the imports to Hamburgh, what per-centage upon that 12,000,000 *l.* is the Stade toll?—I cannot say.

549. *Mr. Villiers.*] You say it is about 20,000 *l.* a year which we pay?—Yes.

550. And that 12,000,000 *l.* a year is the value of the import of British goods?—Yes.

551. *Chairman.*] Then you can put in what the per-centage is by calculation?—I do not think that would be taking the right average.

552. I merely want the fact?—It would be about 20,000 *l.* that England pays.

553. *Mr. Fitzgerald.*] If we introduce goods to the value of 12,000,000 *l.*, and we pay 20,000 *l.* for dues, that is about one-sixth per cent.?—It will be about 0.81.

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about that ; the Committee will understand that upon some goods there is no toll at all ; this is taking the average ; but there are some goods upon which there is no toll at all ; and one heavy item, bullion, pays only one-tenth per cent.

554. Mr. *Fenwick*.] Are there any goods of English manufacture introduced in English ships which do not pay any toll at all ?—There are a great many goods which do not pay toll at all ; therefore taking the whole amount of English imports, and taking the amount of the Stade toll paid, and then saying that England pays so much, would not be quite fair.

555. Mr. *Fitzgerald*.] When you speak of English imports, do you mean imports of English manufactured goods, or goods of all kinds imported in English bottoms ?—Goods of all kinds ; I do not mean merely English manufactured goods, but sugar and coffee and other articles.

556. Therefore it is about one-sixth per cent. upon the whole English trade to Harburg ?—Yes, if you take the amount of the whole trade ; but some articles therein included pay no toll.

557. Mr. *Villiers*.] You are acquainted with the port of Harburg ; are you not ?—Yes.

558. How many vessels do you suppose that port could accommodate ?—I cannot say.

559. Do you think it could accommodate more than 500, or so many ?—I should think about 100.

560. Do you think that more than 100 can enter there ?—I know they do.

561. You stated that 2,000 enter Harburg ?—Yes.

562. I want to know what proportion go to Harburg ; the 2,000 that pay the Stade dues are entirely Harburg ?—I stated that 2,000 English vessels entered Harburg.

563. Paying the Stade dues ?—Of course.

564. If they go to Harburg, they do not pay the Stade dues ?—No.

565. But the 2,000 pay the Stade dues ?—Yes.

566. Do you know how many go on to Harburg ; have you got any official account of that ?—There were 1,167 vessels entering Harburg last year.

567. How many were British ; do you know ?—I believe 428 ; but allow me to say that the number of vessels is not the point ; we want the number of the tonnage, because all those are small vessels, whereas the others may be large vessels. I cannot give the tonnage.

568. They must be small vessels to go to Harburg ?—They must be small vessels to go to Harburg.

569. Any vessel that passes Stade not destined to, or not capable of entering Harburg, must pay the Stade dues ?—Any vessel discharging her cargo at any other place than Harburg pays Stade toll.

570. They could not discharge their cargoes at Harburg into smaller vessels, and then go to Harburg, I presume ?—No, the vessel must go to Harburg.

571. This port of Harburg was declared free in 1850 ?—Harburg got an exemption from Stade toll in 1850.

572. This was changed in 1853, so that the port of Harburg is no longer free, is it ?—Harburg is free from the Stade toll. There was another decree in 1855 enlarging the decree of 1850.

573. I am alluding to the treaty between Austria and Prussia in 1851 which affected Harburg ?—Hanover then joined the Zollverein ; that has nothing to do with the Stade toll.

574. But has it not to do with Harburg being a free port ?—Harburg was a free port prior to 1853.

575. It was declared so in 1850, was not it ?—I believe it was.

576. And it ceased to be so in 1853 ?—Yes.

577. That is by Hanover joining the Zollverein ?—Yes.

578. Then how can any vessel go into Harburg free now ?—Harburg having been a free port, that is to say, not subject to import duties, and Harburg being free from the Stade toll, are two different things ; vessels discharging their cargoes at Harburg were exempted then as they are now from the payment of the Stade toll.

579. I think you stated that the State of Hanover can relieve vessels from paying Stade dues ; Hanover can do that exclusively ?—Yes, Hanover does so.

580. Its connexion with the Zollverein does not interfere with that right ?—

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Her being a member of the Zollverein does not at all alter her position with respect to the Stade tolls.

581. *Mr. Fitzgerald.*] If that is so, if the Hanoverian Government have got that power, why should not they continue the present exemptions to the river-bordering States, although we put an end to the treaty?—I am asked if Hanover exempted Harburg from paying Stade tolls; I say she does, because Harburg is an Hanoverian port.

582. Did you not also state that Hanover had the power of releasing any parties from the payment of the Stade toll of her own mere right and authority?—No, I never said so.

583. In the first decree which you referred to, was this exemption, this privilege, which was given to vessels of the English, German, Prussian, Swedish, Norwegian, and Belgian flags, importing goods from those countries, given in consequence of any favoured nation article, of any convention, or was it given by grace and favour of the Hanoverian Government?—The preamble says, “In consideration of the relations of commerce and navigation existing with other states.”

584. I wish to know whether those words, “In consideration of the relations of commerce and navigation existing with other states,” refer to any favoured nation clause, or any articles in any convention; are you aware of that?—They refer to treaties which Hanover has with other nations.

585. Are you prepared to prove that?—In the convention of Dresden it was provided that any privileges which Hanover should grant by treaty to other nations she should also grant to the Elbe-bordering States.

586. Assuming that to be so, Swedish and Norwegian are not river bordering States?—No, but you will find that the decree does not refer to Swedish or Norwegian goods; it merely refers to vessels carrying British or German produce; there is a great difference between vessels and goods. Norwegian produce cannot be imported at two thirds.

587. *Mr. Milner Gibson.*] Have you ever heard the legal right of Hanover to exempt ships bound to Harburg from Stade toll called in question?—It cannot be called in question, because the Hanoverian government say they do it from their own sovereign right; and I believe, when this subject was mentioned at Dresden in 1844, Hanover said at the time that she would never give up her right to release her own subjects.

588. *Chairman.*] What do you mean by releasing her own subjects?—The fact is, that Hanover pays those dues back to her own subjects; that is to say, she gives them back to every flag and every cargo which enters Harburg; she gives the privilege not to a certain nation, but she gives it to a certain town.

589. *Mr. Villiers.*] She exacts the dues from her own subjects if they discharge a cargo at Hamburg?—If Hanoverian subjects discharge a cargo there, they pay the toll; the freedom from the toll is a privilege given to the town of Harburg.

590. *Chairman.*] You have said in your former evidence that British merchandise coming in competition at Hamburg with the merchandise of other countries and other producers in Germany, the incident of the toll paid falls upon the British producer?—Yes.

591. You say that Hanover exempting vessels that go to Harburg from paying that toll does not give the toll back again to the English producer, but gives it to her own subjects; what is the difference as to the British producer in those two cases?—In those two cases the difference is this, that the British producer must consign his produce to some Hanoverian merchant at Harburg, and therefore the Harburg-Hanoverian merchant would get the advantage in not paying the toll.

592. Would he be likely or not to give the British merchant more for his goods?—What part of the advantage he might give to the British producer would be a matter of bargain between him and the producer; it is clear that he gets the advantage in the first instance.

593. Not having toll to pay upon the goods, would he in competition, choosing between the German goods and the English goods, be on that account likely to give the English merchant more for his goods?—I do not think he would.

594. Then, if he would not be likely to give more for his goods under those circumstances, why should the Hamburg merchant give more for his goods if the toll is taken off altogether?—That is quite a different case. A great many

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English goods are sold at Hamburg, because there is only an import duty of one-half per cent., which could never be sold in the Zollverein.

595. Where do the goods go to from Hamburg?—They go to the North of Europe.

596. Do they pass through the Zollverein or not?—They never come into the Zollverein. Now, for instance, British manufactured goods may come in Hamburg into competition with German manufactured goods; those British goods could never enter the Zollverein, because there would be a prohibitory duty upon them, but they come in competition at Hamburg with goods of the Zollverein, both of them paying the half per cent. duty at Hamburg. Now, it may easily arise that the cost price of both these goods was the same, and the Stade toll, which the English goods have to pay, may give the advantage to the German goods that have no such toll to pay.

597. In your judgment, would that equally affect goods at Harburg?—No; because Harburg is merely a port of the Zollverein, whereas Hamburg is a market of the world.

598. You say that does not apply to goods in Harburg, because it is in the Zollverein?—Yes.

599. Are you prepared with any evidence to show what proportion of the goods which are landed, of a British character, at Hamburg, pass into other countries from Hamburg out of the Zollverein?—I could prepare a statement, but I am not in a condition to give it now.

600. Are there any goods paying duties upon entering into the Zollverein, which are returned when they pass out of it?—Not foreign goods.

601. Foreign goods paying duties entering into the Zollverein, if they pass through the territories of the Zollverein into other countries, receive no drawback?—If they merely pass through, they only pay transit dues.

602. For instance, as to goods landed at Hamburg passing through the Zollverein into a country out of the Zollverein, what tax do they pay to the Zollverein duties?—They would pay the transit duty of 3 ¼ pence (five silver groschen) per cwt.

603. *Mr. Villiers.*] Is that all?—That is all.

604. There are plenty of goods that go to the German fairs that are destined to distant countries, which come from this country, and which do not pay Zollverein duty?—They only pay the transit duties.

*Mr. Richard Glover, called in; and Examined.*

*Mr. R. Glover.*

605. *Mr. Milner Gibson.*] WHAT is your calling?—I am a Merchant and Shipbroker at Hull.

606. Engaged in the trade from Hull to Hamburg?—Yes.

607. Have you been for many years and had much experience in the trade between Hull and Hamburg?—I have been between 16 and 17 years as clerk and agent; I served some 12 years with Messrs. Gee & Co., a very old firm in the Hamburg trade.

608. Are you of opinion that the trade between Hamburg and England would increase more than it does now if it were not for the operation of the Stade dues?—I have no doubt of it.

609. What is your view as to the charge levied under the name of Stade toll; do you consider it a heavy charge upon the trade, or as operating as a differential charge as against the English trade?—I consider that it operates as a differential charge or duty against the British trade to the extent of from ¼ per cent. to 2 ¼ per cent., and in some instances to more.

610. In addition, I suppose, you estimate the disadvantage of the delay and annoyance arising in levying the toll; that adds to it, does not it?—That is an addition, of course, to the other matter.

611. Suppose a steam-vessel laid on the berth at Hull for Hamburg laden with a general cargo, what has to be done in consequence of the Stade toll?—In the first place, the agent or broker at Hull has to supply the captain with a Custom-house cocket for each parcel of goods which is shipped on board the steamer. That cocket is abolished by the British Custom-house authorities.

612. For each parcel of goods going to Hamburg?—For each parcel of goods going to Hamburg.

613. But not to other places?—Not to other places; it is abolished so far as other



other places are concerned. These cockets have to be prepared with great care in order to satisfy the Hanoverian Government as to the nationality of the goods, and in order to secure the advantage of the altered or reduced rates of duty.

614. *Chairman.*] To secure the nationality, you say?—Yes, to prove that they are British goods.

615. *Mr. Milner Gibson.*] What else?—Bills of lading have also to be prepared to be left at Brunshausen when the ship calls there, along with the cockets; and when the goods in those bills of lading are of British manufacture, the fact must be so stated that they are of British manufacture as well in the bills of lading as in the cockets.

616. Then when a vessel arrives off Brunshausen what takes place?—She must heave too for the purpose of proving her nationality and declaring her cargo. A man must be sent on shore with the cockets and bills of lading before the voyage can be continued, and, on the delivery of these cockets and bills of lading, a certificate is given to the vessel, which is sent to Hamburg, certifying that such papers have been delivered up to the proper authorities. The man has afterwards to rejoin his vessel at Hamburg; and I calculate that the expenses of sending the man on shore, with his fare, provisions, and the loss of labour attending his being sent on shore, amounts to about 1*l.* per voyage, or an average of 20*l.* per vessel per annum. That is a tax on the vessel; that is the only direct tax to which the ship is actually subject.

617. That is the expense of the man going on shore with the papers and rejoining the vessel at Hamburg?—Yes.

618. *Mr. Villiers.*] Are we to understand that that sum of 1*l.* covers everything?—It covers everything.

619. Bills of lading and cockets?—No; I make no calculation for that, and the employment of extra clerks for preparing these documents.

620. It is merely the expenses at Hamburg?—Yes.

621. *Mr. Fitzgerald.*] You are speaking of steam-vessels?—I am speaking of steam-vessels. I am solely engaged in that trade.

622. What is the object of establishing the origin of the goods; is that to bring them within the exemption?—That is to bring them within the reduced rate of duty, according to the treaty of 1844.

623. *Mr. Milner Gibson.*] When the vessel arrives at Hamburg, what has to be done there?—When the vessel arrives at Hamburg the captain has to report himself at the Hanoverian Stade Toll Office before he is allowed to break bulk; that is, to commence discharging the cargo. A list of all the goods on board the vessel must be made out, and delivered at the toll office. This entails loss, both of time and money, because the manifests for the Hanoverian toll collector have to be made out in a special form, as the ordinary bills of lading are not available for this purpose.

624. *Mr. Villiers.*] Do you say they are made out in Hamburg or in Hull?—The manifests are made out in Hamburg from the papers made out in Hull. The vessel must unload under the inspection of the officers of the Hanoverian Government, and they have the power to seize such goods as they may consider suspicious. I may state, with reference to this, that I am not aware they exercise this power in any way. I cannot say that I have known them superintend the discharging of a cargo.

625. They have the right to do so?—Yes, they have the right to do so, I believe.

626. *Mr. Milner Gibson.*] How is the toll collected?—The agent of the vessel has to give bond for the due payment of the toll; he collects the toll from the various consignees of the cargo, and is bound to pay in the total amount to the Hanoverian authorities within 14 days after the vessel arrives there, whether he collects it or not, the risk of collecting which he has to take.

627. When the cargo has been discharged and the toll paid, what has to be done then?—Supposing the cargo to be discharged, the captain must then obtain at the toll house in Hamburg another document called a return ticket, which enables him to pass Brunshausen on his return home, which certifies that he has duly discharged his obligation, paid the toll and so forth.

628. In going down again, he has to heave-to off Brunshausen?—Yes, to leave this ticket.

629. *Mr. Villiers.*] Is that what is actually done?—That is done; I have these documents; I can hand in to the Committee a copy of all the documents that are required.

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630. Mr.

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*Vide Appendix.*



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630. Mr. *Milner Gibson*.] This return ticket shows, I suppose, that all the obligations connected with the Stadetoll have been discharged at Hamburg?—Yes.

631. Upon the inspection of that the ship is allowed to proceed upon her return voyage?—Yes.

632. What sort of detention does that cause?—Probably not more than five to ten minutes, if the Custom-house boat is ready to meet the steamer as she is coming down, but sometimes, if the steamer is coming down in the night, it may happen that there may be some little detention; the vessel may have to wait, and particularly if she is coming down before the tide she may happen to drift upon vessels lying at anchor, and thus cause damage, that does sometimes happen, though not frequently.

633. I suppose you are not able to say anything as to how sailing vessels are situated in that respect?—I am not able to speak particularly as to sailing vessels, but if they happen to come up in the dark, they are obliged, I believe, to come to anchor, and so lose a tide.

634. Mr. *Villiers*.] Are coals sent from England by steam-vessels?—Not generally by sailing vessels.

635. Sir *James Graham*.] You say the detention on going down in ordinary cases is about five minutes?—Yes; for a steam-ship, 5 to 10 minutes.

636. What, is it going up?—It is about the same, either going up or down.

637. About five minutes either way?—It may be a little more or less.

638. Ten minutes in ordinary weather would be the outside of the detention?—As a rule, I should say it is in ordinary weather, except when they are going up and down during the night, and then they may have considerably more detention.

639. Mr. *Villiers*.] How is it on Sunday?—I do not think there is any difference on Sunday.

640. Mr. *Milner Gibson*.] In case of any omission or irregularity on the part of the captains of ships, what are the penalties?—Penalties are enforced for any omission or any irregularity in any of the abovementioned documents, although the mistake has arisen entirely by accident. Some time ago I handed in a statement of penalties which had been incurred by the agents of vessels to Lord Clarendon, at the time he was Foreign Minister.

641. If a cocket is not provided for each separate parcel of goods, what takes place?—If a cocket is not provided for each parcel of goods a fine is levied, which varies according to the scale of duties on the goods themselves. In some cases a fine of as much as 2 l. to 3 l. has been imposed and paid for the not providing of a cocket or certificate of origin of a single bale.

642. Have fines ever been levied for mere errors in the description of a package?—Yes, frequently; for instance, when “bales” have been called “cases,” and *vice versa*.

643. A fine levied because a bale is described as a case?—Yes; but I may state with reference to that, that that has not recently been the case; since the frequent agitations about the Stade toll, the Hanoverian Government have been somewhat more lenient about fines.

644. Mr. *Villiers*.] You say frequent agitations about the Stade tolls?—Yes.

645. Where?—In this country; we have had various deputations up to London to the different ministers with reference to the Stade toll.

646. Of late years?—Lately, as late as February last, but also last year two or three times.

647. At the time the Sound dues were in question?—About that time.

648. Mr. *Milner Gibson*.] You say that formerly these penalties for irregularities were much more frequent than they are now?—They were.

649. And they have been less frequent in consequence of the agitation in question?—Yes, I believe that is the cause.

650. *Chairman*.] Do you recollect when the first stir about this matter took place?—There was some stir about this matter in the year 1839, I believe; but that was before my time.

651. Did any stir take place in the year 1850?—I cannot say that I can call it to mind.

652. Do you happen to recollect when Harburg first was relieved from the dues?—I remember the circumstance, but I am not aware whether any particular agitation took place about it at that time.

653. You

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653. You do not remember whether any movement took place in the port of Hull at the time?—I do not, but I think it probable.

654. It might or might not have taken place?—It might; I think it is probable that some move did take place at the time, but I cannot speak to it.

655. Is there any interest in Hamburg steam-vessels held by Hull people?—There is the Hamburg Steam Shipping Company now plying between Hull and Hamburg solely owned by Hamburg shareholders.

656. Have the Hamburg merchants any interest in the steam shipping companies?—No, except in the Hamburg Company above mentioned.

657. Mr. *Müner Gibson*.] Now with regard to the amount of toll, what proportion does the toll bear to the freight?—It bears a very large proportionate per-centage to the freight; see indorsement on copy bill of landing, which I handed to Lord Clarendon at the time, showing the Stade toll to be about 36 marcs banco, or about 2 *l.* 10 *s.* sterling, whilst the freight was only 4 *l.* 5 *s.*, in addition to which the Hull Trinity House primage, and other charges amounting to 1 *l.* 1 *s.* 3 *d.*, had to be paid.

658. What is that upon?—This is upon some goods, as per bill of lading, a copy of which was handed in to Lord Clarendon some time ago; last February.

659. Do you mean to state that the Stade toll bore the same proportion to the freight in the case you mention that 2 *l.* 10 *s.* does to 4 *l.* 5 *s.*?—Yes.

660. Mr. *Fitzgerald*.] Will you state what goods they were?—I cannot state at the present moment what goods they were, but the bill of lading containing the particulars of the goods was handed to Lord Clarendon.

661. Do you represent that to the Committee as an instance of the ordinary operation of the Stade dues, or as an exceptional case?—As the ordinary operation.

662. Then we may assume that your evidence is that the average proportion which the Stade toll bears to the amount of freight is such as you have said, 2 *l.* 10 *s.* to 4 *l.* 5 *s.*?—£2 10 *s.* the Stade toll amounted to, whilst the freight was only 4 *l.* 5 *s.*, but that of course would depend upon the description of goods. I cannot state what the goods were, except that they were manufactured goods.

663. But that is the question which I asked; whether that particular instance was an instance of a particular class of goods, or whether you represented it as being the average operation as regards the toll paid and the freight paid for all goods?—It was handed in to represent the average toll paid.

664. Are you prepared to state your opinion that that is the average now?—I think that would be about the average.

665. *Chairman*.] From Hull, or from where?—From anywhere, Hull or London, or Hartlepool, Newcastle, Leith, &c.

666. Then are we to understand that while the whole Stade dues paid by English parties amounted to 20,000 *l.*, the whole freight received for the goods to Hamburg was only in the same proportion to the 20,000 *l.* that you have stated there?—I do not understand the question.

667. You have stated that the incident of the Stade toll, in relation to the freight upon the average of goods from any part, amounts to the figures you have stated, viz., the proportion of 2 *l.* 10 *s.* to 4 *l.* 5 *s.*?—Yes, I am speaking particularly from Hull to Hamburg, at the present time.

668. I asked you the question whether that was the freight from Hull, and you answered the freight from anywhere?—To Hamburg.

669. If that is the proper proportion between the incident of the dues and the freight, I ask you if the Committee is to understand, that if the whole of the Stade dues amount to 20,000 *l.*, as paid by English parties, then the freight paid by English parties would be in the proportion exhibited by the figures which you have given there?—I cannot answer that question, because the freight varies so very much according to circumstances, and the competition existing.

670. You have stated that that would be a fair proportion upon the average?—Upon the average freight.

671. Taking the average freight upon the average of goods, would it be right to assume that the whole freight paid upon English goods going into Hamburg would be as much more than 20,000 *l.*, assuming 20,000 *l.* to be the amount of toll paid upon the goods, as the proportion of 4 *l.* 5 *s.* to 2 *l.* 10 *s.*; I want to know whether the proportion would be given by adding 60 per cent. to the 20,000 *l.*; would that be the fair amount of freight paid upon English goods going

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going to Hamburg?—I really cannot answer that question directly, because the freight varies so much, as I said before, according to circumstances.

672. Then we cannot place any very great reliance upon what you have stated of that being the just average?—I believe it to be a just average.

673. Then, if you believe that to be so, of course you will believe that the whole amount of freight would be in the same proportion?—Well, I should say perhaps it would.

674. Mr. *Fenwick*.] Have you taken into your consideration of the average the case of coals?—No, I have not done so, because we have no traffic in coals at all, as far as Hull is concerned.

675. Then your evidence applies to cargoes from Hull to Hamburg?—From Hull to Hamburg.

676. And only to those cargoes that go between Hull and Hamburg?—That is all.

677. Excluding altogether the coal traffic?—Excluding altogether the coal traffic; I have made no calculation as to the coal traffic.

678. Then, in point of fact, that answer has no reference to the whole average?—Not as far as coal goes.

679. Mr. *Fitzgerald*.] Can you at all say what the value of the trade is between Hull and Hamburg?—I do not think I can at the present moment; I can get it if it is required.

680. The declared value of the exports from Hull to Hamburg?—I can get it.

681. Has it ever been computed, and can you tell me what is the amount paid by the merchants of Hull in respect of the Stade toll?—I can give you some idea.

682. Will you be kind enough to give me that?—I handed in an account to Lord Clarendon, showing the toll levied on goods laden on board our steamers during the year 1857. The gross amount charged in that year was 2,674*l.* 6*s.* 6*d.*

683. Mr. *Milner Gibson*.] What was it in 1855?—In 1855 it was 2,608*l.* 18*s.* 3*d.*

684. Mr. *Fitzgerald*.] If that proportion between the freight and the toll which you mentioned is correct, and that 2,600 *l.* is the amount of the toll which has been paid by your steamers, do you represent that the amount of freight which your company has earned is only about 5,000 *l.* in the course of the year?—I should think it would be about that, but many articles are free of duty, and therefore the proportion cannot be exactly ascertained.

685. That the gross amount of freight paid to you—not the net amount after paying expenses—but the gross amount paid to you was 5,000 *l.* in the course of the year?—Are you speaking of cargo outwards?

686. Of cargo outwards?—I am not prepared with any evidence as regards the amount of freight received.

687. Mr. *Milner Gibson*.] But you state that those were the exact amounts of toll paid by you during the years 1857 and 1855?—Yes.

688. Have you got the amount for 1856?—In 1856 it was 2,690*l.* 11*s.* 3*d.*

689. Can you state what amount in a year of Stade toll the Elbe Humber Steam Navigation Company and the Hull Steam Packet Company would pay?—They would each pay about the same amount, or an aggregate sum of from 7,500*l.* to 8,000*l.* in one year paid out of the port of Hull, exclusive of other chance cargoes.

690. When the Elbe is partially frozen, and the ships pass Brunshausen, but do not get to Hamburg in consequence of the ice, are they then required to pay toll?—If a vessel gets beyond Brunshausen, and has delivered her papers there, and she afterwards finds that, in consequence of the ice, she cannot get up to Hamburg, she is compelled, owing to the ice, to return to a port below Brunshausen, for instance Gluckstadt; she goes back to Gluckstadt for safety, and there discharges her cargo. The toll is levied, although the voyage to Hamburg was never completed; but petitions for redress then have to be presented to the Hanoverian Government, and it is with great difficulty that the cargo escapes the payment of the toll, though perhaps eventually it does; but it is attended with a great deal of trouble.

691. Mr. *Villiers*.] The second time?—No, the first time.

692. I understand you that if she cannot proceed to Hamburg, having passed Brunshausen, she returns to the port below?—She returns to the port below;

below; in the meantime she has given in her papers, as she has been going up.

693. She has become liable to the toll?—She has become liable to the toll; and petitions have to be presented to the Hanoverian Government to get the toll returned.

694. If she discharges the cargo at Gluckstadt, you mean; does she ever do so?—Occasionally.

695. Where do the goods go to if they are discharged there?—They go up to Hamburg by railway from Gluckstadt, and to the interior, whatever their destination may be.

696. Do you state that that petition or memorial is ever conceded?—Yes, I believe it is as a rule conceded. I merely say that there is some little trouble attending it.

697. Trouble arising from not being able to proceed, in consequence of the ice?—Trouble attending the petitioning the Hanoverian Government to get the cargo exempted from the toll.

698. *Sir James Graham.*] Do you yourself remember the negotiation of the treaty of 1844?—I do not.

699. Have you heard whether, at Hull, that arrangement was considered satisfactory at the time?—I believe it was considered unsatisfactory.

700. At the time?—I believe so; but I cannot speak positively about that. I was at that time very young.

701. But your impression, from what you have heard, is that the change in consequence of that treaty was not of a kind considered satisfactory at Hull?—That is my impression, but I cannot speak positively to that.

702. Was there any reduction in price in consequence of the treaty of 1844 as regards duty?—Yes, I believe there was an alteration.

703. Then what was the cause of the dissatisfaction; was it that the reduction was not so large as was desired?—The idea was that it ought to be done away with altogether, I believe.

704. The dissatisfaction arose from the charge not being altogether extinguished?—Yes, I believe as much as anything else.

705. The reduction did not satisfy, because it did not amount to extinction?—That was the case.

706. *Mr. Milner Gibson.*] With regard to the effect of the Stade toll on trade generally, have you any statement to make to the Committee?—In tracing the effect of this tax on trade generally, it need only be stated that the gross revenue which it is believed Hanover realises by the Stade dues amounts to about 30,000 *l.* per annum.

707. *Mr. Villiers.*] Altogether?—Altogether; and during the last year, 1856 and 1857, it appears to have realised the large amount of 40,000 *l.* sterling, independent of the sum of 5,500 *l.* which would have been payable on the goods which were shipped to the free port of Harburg; and it is a fact worthy of comment, that, since the 1st of January 1857, the river Weser dues have been suspended or raised, which probably enables Bremen more successfully to compete with the port of Hamburg, now that the former port has more extended communication by railway into the interior.

708. *Mr. Milner Gibson.*] Have you any figures to show the value of certain articles, with the rate of Stade toll thereon, and the per-centage of the toll on the value?—The following figures show the value of certain articles with the rate of Stade toll thereon, and the per-centage of the toll on the value taken, during the year 1854. The value per 100 lbs. weight in Prussian dollars on coal, for instance, is one-third of a dollar, the rate of Stade toll per 100 lbs. weight in groschen is one-twelfth, showing the per-centage of the toll on the value to be 1·04. On raw iron the value per 100 lbs. weight in Prussian dollars is 1½, the rate of Stade toll per 100 lbs. weight in groschen is one-twelfth, showing the per-centage of the toll upon the value to be 0·23. On salt the value per 100 lbs. weight in Prussian dollars is thirteen twenty-fourths of a dollar, the rate of Stade toll per 100 lbs. weight in groschen is one-twelfth of a dollar, showing a per-centage of the toll upon the value to be 0·64. On smalts the value per 100 lbs. weight in Prussian dollars is 15¼ths of a dollar, the rate of Stade toll per 100 lbs. weight in groschen is five dollars, and the per-centage of the toll upon the value is 1·33.

709. You stated that the proportion between the Stade toll and the freight was

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was the best illustration that could be given of the pressure of the tax upon the merchant?—Yes.

710. Have you any figures to show the proportion upon any number of articles, between the freight and the amount of the toll, so as to give the per-centage?—The following figures will show the freight and the toll on goods shipped from Hull in 1855, and the per-centage proportion which the latter bears to the former. On 58 bales and 15 cases of cotton goods, the amount of freight in marcs banco would be  $158\frac{2}{16}$ ths, the amount of the toll  $202\frac{1}{8}$ th, showing the per-centage proportion of the toll to the freight to be 128 per cent. On 28 bales and 5 cases of woollen goods, the amount of freight in marcs banco is  $59\frac{7}{16}$ ths, the amount of toll  $57\frac{1}{4}$ , showing the per-centage proportion of toll to the freight to be 96·6. On five casks of drugs, the amount of freight in marcs banco is  $18\frac{9}{16}$ ths, the amount of toll  $12\frac{1}{4}$ , the per-centage proportion of toll to the freight being 66·7. On two cases of cotton and silk goods, the amount of freight in marcs banco is 2, the amount of toll  $3\frac{3}{8}$ ths, showing the per-centage proportion of the toll to the freight to be 168·7. On two cases of woollen carpets, the amount of freight in marcs banco is  $1\frac{1}{8}$ ths, the amount of toll is  $1\frac{1}{16}$ th, the per-centage proportion of the toll to the freight being 65 per cent. On one case of ribbons, the amount of freight in marcs banco is  $1\frac{1}{16}$ , the amount of toll  $2\frac{15}{16}$ ths, showing the per-centage proportion of the toll to the freight to be 204. I find that I have made a calculation here that the average per-centage proportion of Stade toll to freight on all the above articles amounts to 51 per cent. upon the freight.

711. *Chairman.*] It is one half the freight in round numbers?—Yes.

712. *Mr. Milner Gibson.*] Linseed oil is considerably exported from Hull, is it not?—Yes. In addition to these instances, I may refer to linseed oil, which is an article of very considerable export from Hull; the freight on it amounts to 20 s. per ton, and the Stade toll to 14 s. 2 d. per ton, or nearly 75 per cent. upon the freight. Paints and painters' colours are taxed in about the same proportion. Silk and half-silk goods pay about 7 s. 6 d. per 1,000 lbs. net, or 16 s. 10 d. per ton. Fine linen goods pay about 5 s. per 1,000 lbs. net, or 11 s. 6 d. per ton; and should the like goods be unaccompanied by a cocket, an additional duty of about 2 s. 6 d. per 1,000 lbs. net is imposed; that is, supposing a merchant has not provided the ship with a cocket.

713. *Chairman.*] You stated just now, before you went into this Table, that there had been some taking off of the tolls upon the Weser?—I believe they have been suspended.

714. You state that as a fact?—Yes.

715. Who took them off?—I believe, Hanover; but I am not quite certain about that. I believe it is a Hanoverian toll.

716. Was there anything paid for taking them off?—No.

717. Are you sure of that?—I think not; I am not prepared to say positively that there was not anything paid, but I have reason to believe there was not; I believe it was a voluntary act.

718. But you can state, as a fact, that there have been tolls taken off?—Yes.

719. Whether there has been anything paid, and by whom, you cannot state?—No, I am unable to state.

720. *Mr. FitzGerald.*] All those goods which you have enumerated might have been imported into Harburg without any payment whatever?—Without any payment whatever.

721. *Mr. Milner Gibson.*] Has not Hanover recently made an arrangement with particular countries, giving special privileges to their goods?—Hanover has, during the last few years, assumed a right to make different arrangements with different states; and, as has been previously shown, goods of Belgian manufacture pay a smaller rate of toll than those of British manufacture. But it has imposed a still greater grievance on the British shipowner who sends his vessel to Hamburgh, by exempting its own port of Harburg from all toll whatever; a practice which I believe to be contrary to the letter and spirit of the treaty of 1844, which provides for all the ports on the Elbe being treated alike, which are situated above Stade or Brunshausen.

722. In what way does the exemption granted to the port of Harburg operate to the disadvantage of the British trade?—It operates against British shipowners, inasmuch as the trade to Harburg is now carried on by Hanoverian steamers, built by a Hanoverian company especially for that trade, in conse-

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quence of their light draught of water and capabilities of going into the Schwinge when our British steamers cannot do so, and being also under special privileges from the Hanoverian Government.

723. *Chairman.*] Is there anything to prevent English ships from going to Harburg?—They cannot get up; the steamers that we have employed in the Hamburg trade cannot go to Harburg in consequence of the draught of water, and there being many of them paddle-steamers, the width of the gates at the dock not admitting of a large class of steamers.

724. Then the Hanoverian vessels are screw-steamers of small draught of water, I presume?—Of less draught of water, built especially for the trade.

725. Are they running you off the trade?—They are taking to Harburg what we used formerly to get to Hamburg, prior to the exemption of Harburg from the Stade duty.

726. If you were to have screw-steamers of the same draught of water, there is nothing to prevent you going to Harburg?—We have screw-steamers; but they are built of more beam than the Harburg vessels. All our steamers are more particularly built for the purpose of carrying horses, cattle, sheep, pigs, and things of that kind.

727. That is for bringing those ships back again?—Taking them out and bringing them back again; we both take horses and cattle out and bring them home, as cargo on freight.

728. If your vessels were of a size that would suit the place, is there any differential duty, or anything that would prevent you from going there?—We should be exempt from the Stade duty the same as they are, no doubt, if we went to Harburg, but the navigation is difficult at all times, and even dangerous.

729. Is there any other duty that would put you in a worse position than the Hanoverian vessels at Harburg?—There is no other duty; but the Hanoverian vessels have special privileges which I am not intimately acquainted with; they have quays of their own in the docks, where they can discharge under custom-house inspection; but I am not prepared to say that we could not have the same advantages if we went there; it is possible that we might, but the docks could not accommodate one half the trade, if we were obliged to go there.

730. *Mr. Milner Gibson.*] Is not the natural channel for the trade of the north of Germany through Hamburg?—Yes.

731. If I understand you, you consider the exemption given to the port of Harburg tends to cause the traffic to take that route, rather than by Hamburg?—It does.

732. Is it your opinion that if Harburg and Hamburg were equally taxed, the traffic would revert to its original channel?—I have no doubt it would, to a great extent; at all events, we could compete with the Harburg boats. If the goods going to Hamburg were exempt from the payment of Stade duty, we could undertake, as the Harburg boats do, to deliver at Harburg by lighters, which would place us upon a fair footing with them.

733. Is it your opinion that it is an illegal use to make of the Stade toll by granting an exemption from it, and giving a preference to a particular harbour, so as to cause the trade to pass through it which otherwise would not?—It is, in my opinion.

734. *Mr. Fitzgerald.*] Will you explain what you mean by the term “illegal use”?—That it is contrary to the treaty of 1844.

735. Will you point to any article in the treaty of 1844 which makes it illegal?—I believe the 8th article of the treaty of 1844 makes it illegal.

736. The 8th article of the treaty of 1844 recites: “The present treaty shall be in force until the 1st of January 1854, and further until the end of twelve months after either of the high contracting parties shall have given notice to the other of its intention to terminate the same.” You cannot mean that article. Will you point out the article which justifies you in saying that this is illegal and contrary to the treaty?—If you will allow me, I will refer to what information I have upon the subject. I see that the reference is to a copy of the 7th paragraph of the treaty made the 22d July 1844.

737. Will you read it?—I will give the import of it.

738. Referring to the 7th article?—Yes; it says, “We enclose copy of the 7th paragraph of the treaty made the 22d July 1844, by Lord Aberdeen and W. E. Gladstone, Esq., with Hanover, regulating the Stade duty question, in which

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you will find that both nations have bound themselves not to make any allowances, or to grant privileges to trade or navigation, &c. &c."

739. I will read the article: "Her Majesty the Queen of the United Kingdom of Great Britain and Ireland and his Majesty the King of Hanover, engage reciprocally not to grant any reductions of duties, or any favours or privileges, or immunities whatsoever in matters of commerce and navigation to the subjects of any other State which shall not be also and at the same time extended to the subjects of the other high contracting party gratuitously, if the concession in favour of the other State shall have been gratuitous, or upon giving, as nearly as possible, the same compensation or equivalent in case the concession shall have been conditional." Is that the article to which you allude?—I believe that is the same.

740. It goes on to say, "It is, however, understood that the above stipulation shall not apply to the privileges and exemptions as regards the Brunshausen toll, which the free and Hanseatic city of Hamburg enjoys under section 2 of the regulations which are annexed to the convention signed on the 13th of April 1844 by the Commissioners of the Elbe-bordering States with respect to that toll"?—Yes.

741. Will you point out that article, which you have referred to, which makes the freedom which the Hanoverian Government has given to the port of Harburg illegal?—It makes it illegal, inasmuch as there is no stipulation for any port in the Elbe above Brunshausen being exempted from Stade toll.

742. By that article the King of Hanover engaged not to grant any reduction or privilege in matters of commerce and navigation to the subjects of any other State, without giving it to England. I want to know how such a stipulation can apply to the freedom of the port of Harburg, which has been given by the King of Hanover to English subjects exactly in the same manner as it has been given to the subjects of any other power in Europe?—This privilege to the port of Harburg has only been granted since the treaty was made with England in 1850.

743. But is not that a privilege which British commerce has just as much as the commerce of any other power in Europe?—Yes; if the navigation would admit of full-sized vessels being able to navigate the Schwinge as well as they can the Elbe.

744. Still, whatever the privileges are, and whatever the nature of the commerce may be, the same privileges are possessed by British commerce as much as by the commerce of any other power?—I cannot deny that, if British vessels could only make use of them.

745. Then, instead of being contrary to the 7th Article of the Treaty, is it not in exact conformity with the 7th Article of the Treaty?—It appears to be so.

746. Mr. Bowyer.] Is it not your own fault that you do not build ships of such a size as to be able to avail yourselves of that reduction?—It is very costly building ships; we have a very large number of ships which have been employed in the Hamburg trade for a number of years, and it would be very expensive and a very serious matter if we had to replace them by a number of other vessels; besides in these days of competition small steamers are not profitable, and we have the Baltic and other trades to supply with steamers.

747. Mr. Fitzgerald.] Then, I think, you will allow that, instead of being illegal, it is strictly legal?—It appears to be so the way you put it; I certainly had not that impression, as the treaty speaks of all vessels passing Brunshausen.

748. Mr. Fenwick.] You say that practically England is not put upon a similar footing with the other States, because the shipping of England is so large that you cannot get into the Harburg port?—I say the class of steamers, generally speaking, is larger than the port of Harburg can accommodate.

749. Mr. Bowyer.] And, therefore, you say it is unfair to give a certain privilege to a port which is so constructed that large English steamers cannot avail themselves of it?—I think so.

750. Mr. Milner Gibson.] Is it not true that vessels are now sailing from Hull to Hamburg with half cargoes, while they are full when bound to Harburg?—It is quite true.

751. Is the trade suffering at this time?—Very much so.

752. Do you conceive that the Stade toll at the present time is peculiarly oppressive to competition?—Yes.

753. Chairman.] That is to say, it is oppressive to vessels of a certain draught of water, and so wide that they cannot get into Harburg?—Yes.

754. Mr.



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754. Mr. *Fitzgerald*.] Is it not the fact that the commerce between Hull and Harburg has greatly increased within the last few years?—There is no doubt about that; but I think it would increase still more if we were free of the Stade toll.

755. Is the trade between Harburg and Hull principally in the hands of English merchants?—It is in the hands of foreigners.

756. Hanover merchants?—Hanover shipowners; entirely in the hands of Hanover shipowners.

757. What does that arise from?—It arises from the fact that the Harburg people, in consequence of this exemption from the Stade toll, built themselves a certain number of steamers, in order to accommodate the Harburg trade. They built four steamers to navigate the Schwinge, to carry goods to Harburg, which formerly went to Harburg.

758. Mr. *Bowyer*.] Why do not you do the same?—Because they are a class of steamers that are not adapted for the carrying of passengers, horses, carriages, and cattle of all descriptions, boilers, locomotives, &c.

759. Mr. *Fitzgerald*.] Then in that description of commerce Harburg is no rival to you?—In that respect it is not.

760. Then in that particular branch of trade you are not injured at all by the opening of Harburg?—No, not as regards the cattle trade, because there is no market for cattle there.

761. Mr. *Bowyer*.] Does that mostly go to Harburg?—It mostly goes to Harburg.

762. *Chairman*.] Do you know whether the taking of the tolls off upon the Weser has had any effect upon the trade to Bremen?—I believe it has improved the trade to Bremen considerably.

763. Mr. *Milner Gibson*.] During the month of April last some inquiries were made of you by certain persons in Manchester, to know on what terms you could make a consignment of a large number of small bales of goods to Harburg, I believe?—Yes.

764. What was your reply upon that occasion?—I had an inquiry to know upon what terms I could take a consignment of a large number of small bales to Harburg; I replied, stating the terms, and I afterwards heard there was a probability of their being shipped elsewhere, in consequence of certain advantages to be gained by another route. On causing inquiry to be made into the matter at Harburg, I was informed that the reason was as follows: That the goods, although intended for transshipment at Harburg, would be taken hence to Harburg, and lightered from Harburg to Harburg, by which process the merchants would save the Stade duty of 6 *d.* per 100 lbs. less the cost of lightering 2 *d.* per 100 lbs., and so leave a net saving of 4 *d.* per 100 lbs. English.

765. Four-pence per 100 lbs.?—Yes; the goods were intended for Harburg, but it was found to be cheaper to send them to Harburg, in consequence of the saving of the Stade toll.

766. Mr. *Fitzgerald*.] I can understand that it would be an impediment to those engaged in the direct trade from Hull to Harburg, but will you point out how it is an impediment to the communication between Hull and Harburg; surely it makes it more easy by making a reduction of 6 *d.* per 100 lbs., does it not?—It is a saving to the shipper of the goods to send them to Harburg, but it is an injury to us, as British shipowners, whilst the foreigner gets the advantage.

767. Then the opening of Harburg is not only an advantage to the direct trade between Hull and Harburg, but according to that statement it is an advantage to the trade between Hull and Harburg?—As far as the merchants are concerned, but it is no advantage to the British shipowner; it is a direct loss to him.

768. Then your objection is that it is an impediment in the way of the shipowner, not in the way of the British merchant or manufacturer?—It is to the British shipowner.

769. But not to the British merchant or manufacturer?—No.

790. *Chairman*.] It is an advantage to the merchant by giving a saving of 4 *d.* per 100 lbs. weight, but not to the shipowner who has vessels of a particular class and width?—Exactly.

771. Mr. *Fenwick*.] Were those goods on which 4 *d.* would be saved a fair sample of the ordinary traffic between Hull and Harburg?—I should say they would be.



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772. If it is an ordinary case, why do not all the goods save 4 *d.* per 100 lbs. weight?—I think perhaps this was not an ordinary case, inasmuch as it was a small cargo of goods intended for transhipment from Hamburgh to some West India station or other; I cannot say where.

773. Then I suppose you really mean that this particular instance was an exceptional instance?—I think it perhaps was.

774. Mr. Bowyer.] That would not have applied, you would say, to heavy goods?—I have never heard the inquiry in a general way; it has only been in a particular way.

775. Mr. Milner Gibson.] The trade with Harburg has greatly increased since it has been made free, has it not?—Yes.

776. Have you a table which will show that?—I have collected from various sources the following account of the increase of laden vessels going to Harburg from Great Britain.

777. Will you hand in the table?—I will.

[The Witness delivered in the same, which is as follows:]

	British Vessels.	TOTAL of British and Foreign.
In 1850 - - - - -	6	152
In 1851 - - - - -	15	335
In 1852 - - - - -	42	691
In 1853 - - - - -	68	844
In 1854 - - - - -	129	1,032
In 1855 - - - - -	106	1,118
In 1856 - - - - -	650	1,114
In 1857 - - - - -	710	—

778. Chairman.] Is that the same table which has appeared in print, in a pamphlet?—Yes; with some additions.

779. But it is substantially the same?—Yes.

780. Did you take this table from that pamphlet, or did you take it from independent sources?—I have taken it partly from the pamphlet, and also from returns which have since been published in the papers.

781. Mr. Milner Gibson.] The trade between Great Britain and Hamburgh is exposed now to a great many increased competitions, in consequence of the abolition of the Sound dues?—It is.

782. Will you explain how that operates?—Since the abolition of the Sound dues a trade has sprung up with Stettin, Königsberg, Dantzic, Copenhagen, and other ports in the Baltic, and also, since the abolition of the Weser dues, with those in the river Weser. I may state that the different trades which have sprung up are mainly carried on by foreign steamers, principally Prussian, to Stettin, Dantzic, and from Königsberg, and those places.

783. What you mean, I suppose, is that the exemption from the Sound dues makes the competition more severe which the Hamburgh and Hull vessels have to bear?—It does.

784. And, therefore, Hull claims to have the Stade toll taken off her steamers?—Yes.

785. Chairman.] Is it an injury to British merchants that those goods go direct to Copenhagen, and those places in the Baltic where they are wanted, instead of going round by Hamburgh?—It is an injury in this respect, that it is a longer voyage, and it involves a greater risk, and probably the merchant pays more freight.

786. Then what makes him take them that way?—The abolition of the Sound dues has caused the goods to go by the Baltic, instead of by Hamburgh.

787. Do you mean the Committee to understand that the imposition of the

Stade dues is of that nature upon any particular article, that it will turn the scale as to whether the goods will go through Hamburg or will go to Stettin?—I think, if the Stade dues were abolished, a certain portion of the goods would come back again to Hamburg.

788. Take any article you please; take the article of coal, would it by possibility ever go through Hamburg to Stettin?—No, I do not think it would.

789. But give us some article that would?—Bale goods of any sort, cottons, and woollens, and so forth.

790. What is the *ad valorem* duty upon bale goods of any kind for the Stade dues?—Do you mean the duty on the value of the goods?

791. Yes, any that pay *ad valorem* duty?—I should say from  $\frac{1}{4}$  to  $2\frac{1}{4}$  per cent.

792. Is it your opinion that the Stade duty on bale goods amounts to  $2\frac{1}{4}$  per cent. *ad valorem*?—Yes; that is my opinion; it amounts to at least that, in some cases.

793. That is your opinion?—Yes.

794. Is that duty being saved sufficient to turn the channel of trade from Hamburg to Stettin, to which those goods now go?—I think it would have a tendency that way.

795. You will not take upon yourself to say, that it altogether would do so?—I think to a very great extent it would.

796. Supposing that it did not amount to  $2\frac{1}{4}$  per cent., then the tendency would be less?—Somewhat less, probably.

797. Less in proportion?—Probably so.

798. Where do the articles that are carried to Stettin go to generally?—Into the interior of Prussia to Berlin probably, and Königsberg, and in fact they branch off in different directions.

799. Do they go into the Zollverin?—Probably they do.

800. Can you tell us what the difference of transport would be from Stettin to Berlin, and from Hamburg to Berlin?—I think I can; there is a great advantage at present in sending goods *via* Stettin to Berlin, over Hamburg to Berlin, in railway carriage; for instance, the rate of carriage from Stettin to Berlin upon twist is six silver groschen; the rate of carriage from Hamburg to Berlin on twist is 13 silver groschen; but if we were in a position to be free of the Stade toll, I entertain an opinion that, to some extent, we could compete with the port of Stettin for Berlin traffic, and traffic to those places.

801. Then that would become more a Hamburg question than a British question, putting aside for a moment your own particular Hull steamers; as far as the British merchant and the producer is concerned, it is immaterial which way the goods go?—But it must be remembered that there are also other steamers from other ports to Hamburg.

802. We will consider the steamer presently; but so far as the British producer of goods goes you say it might be equal, if the Stade dues were taken off between Hamburg and Stettin in going to Berlin, taking that point?—It might be pretty nearly equal.

803. Which way do you think the scale would be?—I think it would slightly incline towards Stettin; but we of course could meet that by a proportionate reduction of freight.

804. Then the Hull steamers must come down a little to turn the scale?—They generally have to do that.

805. Otherwise, putting the Hull steamers out of the question, it would be more a Hamburg question than it would be a British manufacturers' question, would it not?—It would be more a British shipowner's question than a British manufacturer's question.

806. Are there any other places besides Berlin that are supplied more to the north of Stettin?—There are Breslau and Górlitz, and other places.

807. Is the difference of cost between Hamburg and those places, and Stettin, and those places more or less favourable to Stettin than Berlin is?—It is more favourable to Stettin according to the present rates.

808. More favourable?—Yes.

809. And therefore the taking off the Stade dues would have less weight there. For instance, as to goods that go to Copenhagen, before the Sound dues were taken off, was the trade from England to Hamburg, and from Hamburg to Copenhagen?—There was a trade to Copenhagen direct, but a great

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many goods went by Hamburg; I am speaking of prior to the abolition of the Sound dues.

810. Do you think it an advantage to the British manufacturer that those goods should go direct to Copenhagen, or go first to Hamburg and pay through the nose to the Hamburg merchant, and then go to Copenhagen, putting the Hull steamers aside?—It would be an advantage no doubt to the merchant to ship direct to Copenhagen, so far as time goes.

811. The chances being, that he would get a large share of the spoil, would not he?—It would be an advantage to him in every respect.

812. Does that apply to all the other places which you have named; you named Copenhagen and Stettin; is there any other place in which there is any diversion?—Dantzic and Königsberg.

813. That is still further to the North?—Yes.

814. Do you think that the taking off of the Stade tolls would make goods go through Hamburg to the neighbourhood of Königsberg?—I think it would be a great advantage to us; there is no doubt about it.

815. What places are supplied from Königsberg?—That I can hardly tell you; there are so many more places, it would be rather difficult to say; I do not know.

816. *Mr. Fitzgerald.*] What is the distance from Hamburg to Königsberg?—I should suppose it would be about a day's journey by rail.

817. *Mr. Milner Gibson.*] In addition to the disadvantage, which you say arises from the privileges given by Hanover to the port of Harburg, do you consider that the privileges enjoyed by the Hamburg citizens for their ships are disadvantageous to the British shipowner?—Decidedly so.

818. What have you to say upon that point?—There are at the present time two companies' steamers running between London and Hamburg; those steamers are owned exclusively by Hamburg merchants residing within the walls of Hamburg, in compliance with the treaty; those steamers are exempt from the payment of all Stade dues upon the cargo which they carry intended for Hamburg merchants. So that the British shipowner is placed at a disadvantage in that respect; the British vessels which run in competition with those Hamburg boats are at a disadvantage, but so far as the London trade is concerned, Mr. Pratt, I believe, is anxious to be called before you, to be examined upon that point, and I dare say he will give you more information than I can do with respect to the London trade. As far as Hull is concerned, we have a Hamburg company owning four steamers, and the original object I believe of the formation of that company was to enable the merchants to import their goods free of Stade toll, by virtue of the goods being Hamburg property, and shipped on board Hamburg vessels; that company was formed, and tremendous efforts were made with the Hanoverian Government to get the cargoes of those vessels exempt from the payment of Stade toll, but it so happened that some few shareholders of the company (for it is a joint stock company), did not reside within the walls of Hamburg, and they were not disposed to remove their residences, I suppose; the result was that Hanover refused to give them this privilege of exemption from payment of Stade toll. They protested for a length of time against it, but it was found to be of no use, as the Hanoverian Government would not give way. If it had so happened that the government had given way, and had granted those steamers an exemption from the payment of Stade toll, it would have been very injurious to the British shipowners, who are also trading from the port of Hull, inasmuch as the Hamburg steamers would have taken nearly the whole of the goods shipped from the port of Hull.

819. *Mr. Fitzgerald.*] If that relaxation had been made in favour of the company formed partly of Hamburg merchants, and partly of those who did not reside within Hamburg, would not the British merchant and the British shipowner have been entitled to be put upon exactly the same footing under the favoured nation clause?—Not that I am aware of.

820. *Chairman.*] Hamburg goods in Hamburg ships do not pay duty?—No, they are exempt.

821. *Mr. Milner Gibson.*] Has not the effect of that exemption been to increase the quantity of goods carried under the Hamburg flag, and to decrease the quantity carried under the British flag?—Undoubtedly it has.

822. In fact, a British ship competing with a Hamburg ship in carrying goods

goods to Hamburg merchants, is at a great disadvantage?—No doubt about it; particularly from London at the present time.

823. *Chairman.*] Are we to understand that taking the last 10 years, or any other number of years, the relative state of things between Hamburg and British ships has been, that the British ships have decreased, and the Hamburg ships have increased trading between this country and Hanover?—I do not say exactly that the number of British steamers has decreased, but I can say that the number of Hamburg steamers has materially increased.

824. I am speaking relatively; are the numbers of British and Hamburg ships to each other now relatively greater or less than they were 10 years ago?—I do not think there has been any material alteration within the last 10 years.

825. *Mr. Fitzgerald.*] But this immunity which is now enjoyed by Hamburg ships has always been enjoyed by Hamburg ships?—Yes.

826. It does not depend upon the treaty of 1844?—No, I do not suppose it does.

827. So that if the treaty of 1844 were put an end to to-morrow, the Hamburg ships would still possess those very privileges?—Yes.

828. *Mr. Milner Gibson.*] Have you any figures to show the increase of the shipping under the Hamburg flag going up the Elbe?—The following tabular statement of the number and tonnage of merchant vessels which belonged to the port of Hamburg will show that

In the year 1844 there were 206 vessels, representing 53,010 tons.

"	1845	"	223	"	57,069	"
"	1846	"	228	"	58,545	"
"	1847	"	249	"	66,609	"
"	1848	"	257	"	71,691	"
"	1849	"	286	"	82,053	"
"	1850	"	326	"	95,010	"
"	1851	"	351	"	103,899	"
"	1852	"	360	"	112,884	"
"	1853	"	408	"	127,695	"
"	1854	"	456	"	159,687	"
"	1855	"	448	"	159,663	"

829. *Chairman.*] That is the trade between Hamburg and all the world?—Between Hamburg and all the world.

830. Have you any table of the trade between Hamburg and this country, carried on in Hamburg ships?—No, I have not.

831. *Mr. Milner Gibson.*] Supposing a British ship arriving at Hamburg from South America with sugar, so far as Hamburg is concerned, she would be on the same footing as a Hamburg ship, would not she; so far as the Hamburg authorities go; Hamburg is a free port?—Yes.

832. The authorities of Hamburg do not place a British ship in a worse position than any other ships?—No, I do not think they do.

833. Then the disadvantages which the British ship labours under when she comes to Hamburg, in competition with the Hamburg ship, is from the operation of the Stade toll entirely?—Decidedly.

834. It is a Hanoverian imposition which is put upon the British ship, and not put upon the Hamburg ship?—Not put upon the Hamburg ship, or the Hanoverian ship going to Hamburg.

835. If it were not for that, the British ship arriving at Hamburg would be just in the same situation, in all respects as regards tolls and charges, as the Hamburg ship?—No doubt of it.

836. Is it not considered generally rather a hard case that England should be subjected to a charge to which other nations are not subjected; as to Hamburg ships, for instance, is it not considered an unfair thing on the part of Hanover, to put a charge upon English ships which she does not put upon Hamburg ships?—It is; no doubt about it.

837. *Mr. Fitzgerald.*] Is it not under an exemption, which existed before Hanover ever owned the tolls?—Very likely it may be; I cannot speak to that.

838. *Mr. Milner Gibson.*] Is there any other matter which you wish to add

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\* Vide Appendix.

to your evidence?—I wish to hand in the documents; the printed forms which are required to be given by British ships (*handing in the same*).\*

839. Have you got a return showing the increase of British vessels during the same years as those, as to which you have given in a return of the increase of Hamburg vessels?—No, I have not.

840. Can you give such a return?—No, I cannot.

841. There are some tables here; where did you get them from?—I believe some of our correspondents got them from the Hamburg returns; I believe they are accurate, but I have not verified them myself: “It would appear that, about the period of 1839, various remonstrances were made by this country that many articles were rated differently, according to the declaration; for instance, tobacco and tobacco leaves; other articles were differently enumerated, according to the name being given either in German or in English. On the interference of Government being demanded to remedy this, Lord Palmerston acknowledged the injustice, and gave an assurance that a treaty should be forthwith made with Hanover. A treaty was soon after made, the result of which was that the rates on a few British articles were lowered, and that our captains were treated with a little more courtesy and civility at Brunshausen.”

842. Will you now refer to the negotiations with Belgium?—“It appears, however, that the negotiations of Belgium had a better result than ours. The Dutch levy a toll on all vessels at the mouth of the Scheldt going up to Antwerp, which the Belgian Government refunds to them on their arrival at Antwerp, with a view to encouraging trade there. This Government then, it appears, demanded in 1840 to be placed on the same footing as Hamburg with regard to the Stade tolls, which being refused by Hanover, she at once suspended the repayment of the Scheldt dues to all vessels belonging to Hanover. This step was so severely felt in Hanover, that the Government proposed a treaty, which was signed in 1842, being the first treaty signed with a foreign nation.”

843. Mr. Fitzgerald.] How do you know that those various communications were made; you say, for instance, that the British Government made a claim in 1840 to be put upon the same footing?—No; the Belgian Government.

844. The Belgian Government made a claim in 1840 to be put upon the same footing as Hamburg ships?—Yes.

845. You say that, in 1839, Lord Palmerston gave an assurance that a treaty should be forthwith made with Hanover; on what authority do you say that?—I state it on the authority of Dr. Soetbeer, the Secretary to the Chamber of Commerce in Hanover.

846. Mr. Gibson.] Will you read the passage again with reference to Belgium?—“It appears, however, that the negotiations of Belgium had a better result than ours. The Dutch levy a toll on all vessels at the mouth of the Scheldt going up to Antwerp, which the Belgium Government refunds to them on their arrival at Antwerp, with a view to encouraging trade there. This Government, then, it appears” (that is, the Belgian Government), “demanded, in 1840, to be placed on the same footing as Hamburg with regard to the Stade toll, which, being refused by Hanover, she at once suspended the repayment of the Scheldt dues to all vessels belonging to Hanover. This step was so severely felt in Hanover, that the Government proposed a treaty, which was signed in 1842, being the first treaty signed with a foreign nation. Belgium further reimbursed the Scheldt dues, and, in return, some Belgian goods were made free, whilst others were considerably lowered. Thus, Belgian marble was made free; raw and refined sugar, tanned leather, arms and glass goods of Belgian manufacture, were reduced one-half, provided they were imported in Belgian or Hanoverian vessels. This treaty appears to have been the first breach, and the Hanoverian government felt they were compelled to come to terms; for at the next meeting of the Elbe Toll Commissioners she abandoned her pretensions to it as a sea toll, and thus acknowledged the authority of the Commissioners. After much debating, a treaty was agreed upon on the 13th April 1844, which had the effect of regulating the tariff, and founding something like a system; at the same time it gave the merchant a little more protection than he had before. For instance, in case of a mistake in the ship's papers or declarations, if a declaration merely stated one package of manufactured goods, according to the old tariff, in that case one dollar was the duty; but if it unfortunately stated the number of yards, 20 times as much might have to be paid, and the only way to get over this was by

petition to Hanover, which was done away with by the treaty, at the same time that the Hamburgh privileges were acknowledged. On the 22d July the same year, the English treaty was signed, which reduced the tariff in a great many articles to two-thirds the rate, and in 1846 a treaty was signed with the United States, which I am given to understand expires next month or thereabouts." I believe it has already expired.

847. *Mr. Fitzgerald.*] With respect to the advantages which you say were secured to Belgium by the first treaty signed in 1842, is it not the fact that the very same advantages were given by the treaty in 1844 to English ships, and English manufactured goods?—I dare say the advantages were equivalent to some extent.

848. Was not the same exemption from duties on the same articles extended to British goods and British ships as were extended to Belgian goods and Belgian ships by the treaty of 1842?—I cannot answer that question.

849. If you cannot answer that question, how can you tell me that the Belgian negotiation was more successful than the British, when you do not know what the relative advantages secured to the two nations were?—I only state it upon the authority of Dr. Soetbeer; I am not speaking of my own knowledge of the fact.

850. *Chairman.*] Have you compiled that paper which you are reading from yourself, or has it been compiled for you by anybody else?—This paper was compiled by myself; it is taken from translations.

851. You have worked it up yourself?—Yes.

852. *Mr. Milner Gibson.*] I suppose that the principal cause of the pressure on the Government to deal with the Stade dues arises from the great competition experienced in the trade?—Yes.

853. And the example of the redemption of the Sound dues, I suppose, is considered as a precedent to be followed in the case of the Stade tolls?—No doubt about it.

854. What have you to say upon the two tolls; do you think there is a difference of principle between the Stade toll and the Sound toll; do you see any distinction?—It is true that the two tolls are quite different in principle, inasmuch as Hanover has recently admitted the latter to be a river and not a sea toll; but Hanover does not own both shores of the river, not even the whole of the left, as the most important points at the mouth, viz., Ritzebuttel, Cuxhaven, and the island Neuwerk, belong to Hamburgh, which city does everything for promoting the navigation of the Elbe, whilst Hanover does absolutely nothing.

855. *Mr. Villiers.*] Have you had communication with the Chamber of Commerce at Hull?—I am in connexion with them.

856. Will you allow me to ask, do they know that you have come up to give evidence before this Committee?—Yes.

857. Are you deputed by them to give evidence upon this subject?—Yes.

858. Have they ever considered it?—Yes.

859. Have they considered it lately?—Yes.

860. Since the abolition of the Sound dues?—Yes.

861. Is it considered by the Chamber of Commerce a greater grievance for that reason?—Undoubtedly it is.

862. Is that because more goods go by the Sound to the northern parts of Europe?—Yes.

863. And fewer go to Hamburgh?—Fewer go to Hamburgh.

864. That does not affect you at Hull at all, does it?—It does to some extent, but more particularly British ships.

865. *Mr. Fitzgerald.*] But is there not this difference between the Stade dues and the Sound dues, that whereas the Stade dues may be evaded by going to Harburg, the Sound dues must be paid by all ships, or by all the cargoes in those ships rather, that pass through the Sound?—When the Sound dues were in existence, of course they must have been paid by all.

866. Therefore the Stade dues are almost exclusively a burden upon shipping, whereas the Sound dues were a burden equally upon shipping, upon commerce, and upon manufactures?—Almost; but we can prove the Stade dues to be a burden upon manufactures also.

*Mr. R. Glover.*

15 June 1858.

*Veneris, 18<sup>o</sup> die Junii, 1858.*

MEMBERS PRESENT :

Mr. Blackburn.  
Mr. Fenwick.  
Mr. Milner Gibson.  
Sir James Graham.

Mr. Grogan.  
Mr. Henley.  
Mr. Hutt.  
Mr. Villiers.

THE RIGHT HON. JOSEPH WARNER HENLEY, IN THE CHAIR.

*August Sanders, Esq.*, was called in ; and Examined.

*A. Sanders, Esq.*

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867. *Mr. Milner Gibson.*] WHAT is your occupation?—I am a merchant and shipowner from Hamburg ; I am also Chairman of the Board of Directors of the Elbe-Humber Steam Navigation Company, plying with four vessels between Hull and Hamburg since 1846.

868. Have your ships to pay Stade dues?—Yes, they have to pay Stade dues for the cargoes when they are going on the Hamburg line, although they are going under the Hamburg flag.

869. *Mr. Villiers.*] Are the Committee to understand you that the proprietors are Hamburg citizens?—Yes.

870. And your boats go under the Hamburg flag?—Yes.

871. And those goods pay notwithstanding?—Yes ; there are some of the shareholders who are not living within the walls of Hamburg, and by the wording of the treaty, Hanover thinks herself entitled to make them pay Stade dues on all cargoes ; because all owners of ships ought to live within the walls of the city to entitle them to the exemption.

872. You do not speak of yourself individually as a shipowner, but as chairman of the company?—I am the chairman of the company ; I am a shipowner besides.

873. In speaking of these four vessels trading between Hull and Hamburg, you are speaking as representing the company owning those vessels?—Just so.

874. You are the chairman?—I am the chairman.

875. *Mr. Milner Gibson.*] What is the amount of Stade dues that you pay?—I have a statement here of the two last years, 1856 and 1857, which shows that in the year 1856 we paid Stade dues to the amount of 4,032*l.* 3*s.* 1*d.*, and in the year 1857 we only paid 3,329*l.* 9*s.* 10*d.* ; this is on account of the large decrease in the trade between England and Hamburg in the year 1857.

876. *Chairman.* That being the list of figures, you have no objection to put it in, I suppose?—Not at all ; it will show every voyage, and the amount of duty paid every voyage upon the cargoes.—(*The Witness delivered in the same.*)

*Vide Appendix.*

877. *Mr. Villiers.*] I think you said you had been trading since 1846 with these ships?—Yes.

878. Can you give the Committee the average annual payments?—I can give you the exact payments for last year.

879. *Mr. Milner Gibson.*] How do you account for the decrease in the trade in the year 1857?—I think the Stade duties are the principal cause of the decrease.

880. *Chairman.*] Did you pay more dues in 1856, or less than in 1855?—I have not the statement here, but I am pretty sure that we paid about the same amount in 1855 as in 1856.

881. Then, how do you account for the circumstance that, as Stade dues existed in 1855, 1856, and 1857, they should suddenly make the trade drop in 1857?—It is partly on account of the abolition of the Sound dues.

882. How

882. How should taking off the Sound dues make the trade less with reference to the Stade dues?—The abolition of the Sound dues has taken some goods off our line; but this is only a part of the reason.

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883. *Mr. Milner Gibson.*] The general trade of Hamburg shows a large increase in 1857, does not it?—It does; we never had a year before showing so large imports as the year 1857.

884. But the trade between England and Hamburg has decreased?—The trade between England and Hamburg has decreased. I can prove it to have decreased in those articles which are most important to this country.

885. Do you consider that the Stade dues have been the cause of this decrease, and have had an injurious effect upon British shipping to Hamburg?—The Stade dues I consider to be one of the principal causes of this decrease. I also consider these dues a great incumbrance upon the shipping between Great Britain and Hamburg.

886. What is the proportion of the Stade duty to the freight?—Generally speaking, or do you mean what we pay for those ships?

887. Speaking of that which comes under your own knowledge?—Our company pay rather more than 25 per cent. upon the amount of the gross inward freight. The latter having amounted in 1856 to about 16,000 *l.*, and in 1857 less than 13,000 *l.*; the paper which I handed in shows that we paid about 4,000 *l.* duty in 1856, and 3,300 *l.* I think it was in 1857.

888. *Chairman.*] How much was the freight in 1856?—About 16,000 *l.*

889. How much was the freight in 1857?—Less than 13,000 *l.*

890. *Mr. Milner Gibson.*] Stade dues form a considerable item in proportion to the freight generally within your knowledge?—Certainly, they do.

891. Can you state to how much the duty amounted per ton on some of the principal British articles carried by your ships?—I can show you the amount paid for Stade dues upon some principal British articles shipped by steamers from Great Britain to Hamburg, as computed per ton; twist, cotton, and linen yarns pay about 1 *s.* 9 *d.* per ton; woollen and worsted yarns, 3 *s.* 9 *d.*; manufactures of cotton and wool, 10 *s.* 6 *d.*; hardware and cutlery, and yellow metal, 4 *s.* a ton; iron, in bars and rails, 8 *d.* a ton; those are the principal articles shipped by steam from the east coast of Great Britain.

892. *Chairman.*] What is the freight of bar iron from Hull to Hamburg?—We have taken it as low as 7 *s.* a ton; we are now getting 10 *s.*; from 7 *s.* to 10 *s.* per ton; it varies according to the competition.

893. Bar iron?—Bar iron.

894. Then the duty is 8 *d.* upon that?—The duty is 8 *d.* upon that.

895. Then that is not 25 per cent. upon that article?—No, it is not 25 per cent upon that article.

896. What is the freight of cotton yarns, generally speaking?—It is higher now than it was in 1856; it is 2 *d.* a foot.

897. How much does that come to per ton?—A bale of twist generally weighs 1,200 lbs., so that two bales of twist, of course, would make a ton or a little more; call it a ton.

898. How much is the freight upon that?—Each bale generally measures 50 feet.

899. How much would that be per ton?—Twopence a foot is 8 *s.* 4 *d.* a bale.

900. Can you give it us per ton?—That is 16 *s.* 8 *d.* per ton as near as possible.

901. That is the approximate freight?—Yes.

902. The duty is how much?—On twist it is 1 *s.* 9 *d.*

903. What per-centage is that?—That is something more than 10 per cent.

904. Then having stated that the average duty is 25 per cent. on the freight, and having given us the freight and the relative duties on bar iron and cotton twist, will you be kind enough to tell us what are the articles which bring the average out so very differently?—Speaking from my own experience, I import a good deal of goods from Manchester, staple goods, shirting and domestic manufactures.

905. What is the freight of a bale of manufactured cotton or woollen?—A bale of about 50 feet would take a weight of about 800 lbs.

906. Will you turn into tons, and tell the Committee how much it is per ton?—

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ton?—Considering we take bales of 800 lbs., of course two and a half such bales would be a ton, as near as possible.

907. What would be the freight of 2½ bales?—About 21 s.

908. What would be the duty?—Ten shillings and sixpence a ton, and 2½ bales would weigh a ton; the Stade duty would be 10 s. 6 d.

909. How much would be the freight of a ton?—Twenty-one shillings; and the duty would be 10 s. 6 d.; that is 50 per cent.

910. *Mr. Villiers.*] These are all manufactured goods from Manchester?—Yes, shirtings and domestics.

911. *Chairman.*] Is the freight upon woollen and cotton goods the same as bale goods?—The freight is the same per foot.

912. Bale yarns, though by measurement, pay a different rate of freight, do they?—No; yarns and manufactured goods pay the same rate of freight.

913. All measurement goods pay the same rate of freight?—All measurement goods pay the same rate of freight.

914. Irrespective of their value?—Irrespective of their value.

915. *Mr. Fenwick.*] Can you tell me what proportion of the whole imports upon which Stade duties are paid are cotton and manufactured goods?—In our ships we carry more bale goods than the other companies, because the company was originated by the first importers of manufactured goods in 1846. The shareholders, most of them, were importers of manufactured goods, and consequently they would protect these steamers.

916. *Chairman.*] Can you give the Committee any information upon the value of bale cotton goods?—Of course cotton goods, generally speaking, are of very different value according to the weight, but I trade principally in the bulky staple articles such as I named before, and those make the greatest part of the trade; the value of a pound of those goods is, for shirtings, for the large bulk of them, 1 s. a pound; domestics will vary from 9 d. to 1 s. a pound.

917. Per pound value?—Yes.

918. A ton, then, would be worth, how much?—A ton of shirtings would be worth about 112 l.

919. Is that a low description of cotton goods, or the medium?—It is the staple article.

920. What per-centage would the duty of 10 s. 6 d. per ton, which you have given us, be upon that?—It would be just again one-half per cent.

921. *Mr. Milner Gibson.*] Do Hamburg steamers, enjoying the privilege of exemption from Stade tolls, now compete with British steamers between Hamburg and Hull?—Not at present.

922. Is any such competition likely to arise?—Such a competition is about to take place, as our company are on the point of selling their steamers to Hamburg citizens who are entitled to exemption from dues, in order to save the payment of those dues.

923. Does this competition exist in any other British ports?—At the port of London this competition exists, since six Hamburg steamers, enjoying the privilege, are regularly plying between London and Hamburg.

924. How does this competition affect the British shipowners?—The Hamburg merchants give of course preference to these boats, and even prefer to retain their goods for some time rather than employ the British steamers, on account of the heavy tolls.

925. Can you prove an instance of the kind you have mentioned, where the competition injuriously affects the British shipowners?—I can produce an invoice, dated 12th of May last, showing, that if the goods in question had been shipped in a British bottom, instead of a Hamburg bottom, in which they have been shipped, the duty upon a value of 29 l. 2 s. 5 d. would have been 14 s., or more than two per cent. of the value, whilst the freight agreed upon was, in this instance, 6 s. 6 d. in full, or about half the amount of the duty.

926. *Mr. Villiers.*] The freight was half the amount of duty?—The freight was half the amount of the duty.

927. *Mr. Milner Gibson.*] Can you give instances where goods could not be shipped in British vessels on account of the Stade dues?—I can state another instance where an article of British manufacture, namely, patent felt, which is a London manufacture, shipped in September last in one of our boats, was discontinued shipping on account of the excessive height of the Stade dues, the invoice amount being 56 l., and the duty paid amounting to 1 l. 4 s., equal to 2½ per cent.

cent. of the value, whereas the freight amounted to 1 *l.* 11 *s.* 2 *d.*, or about 3 per cent. upon the value. I have the original invoices and the bills of lading here if the Committee wish to have them. These two invoices are of one party in Hamburg, and are only a few of many instances of the kind; if it is wished, I will deliver in a hundred of similar instances within a fortnight.—(*The same were delivered in.*)

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*Vide Appendix.*

928. *Chairman.*] Do I rightly understand you to say, that these goods cannot go in British ships on that account?—No, they cannot pay the Stade dues.

929. They can go in Hamburg ships?—They can go in such Hamburg ships as are enjoying the privilege.

930. And therefore, so far as British ships are concerned, the injury to them arises from Hamburg having the exemption?—Certainly, as far as that goes.

931. *Mr. Villiers.*] The goods must belong to a Hamburg citizen, must they not?—Certainly; and the ship must exclusively belong to Hamburg subjects, but all those Hamburg subjects are required by Hanover to live within the walls of the city or the suburb of St. Pauli.

932. But if the goods are consigned to anybody at Hamburg, will that come under the description of ownership?—They must be the property of Hamburg citizens; I may mention that those are not exceptional cases.

933. *Mr. Milner Gibson.*] How does Hanover derive the power to decide what is a Hamburg ship, or what constitutes a Hamburg ship?—It is the wording of the treaty; and the only power that has to decide whether Hanover has the right to act as she does would be what they call the Commissioners of the Elbe-bordering States. There is a long way to come there; it is only every three or four years that they sit at all; that mode of testing it has not been tried.

934. It was decided in England, that the fact of certain shareholders in a company, not being Englishmen, would not make the company a foreign company; that the company would be an English company, and the ships owned by it would be British ships, although all the shareholders might not be Englishmen; a contrary principle seems to be acted upon in Hanover in reference to Hamburg ships, as they require that every shareholder should be a citizen of Hamburg?—Not a citizen exactly, but a subject of Hamburg.

935. That seems to be a decision peculiar to the Hanoverian view of the law of nations, does not it?—Certainly; but it is the only way in which she can derive so much dues according to the treaty as she does.

936. Is it inserted in the treaty that that shall be the definition of a Hamburg ship?—It is; I have the wording of the treaty here.

937. *Mr. Villiers.*] Does not the flag determine the ownership generally?—Yes; it is only in the sense of the treaty that the ship is not considered a Hamburg ship; but it is a Hamburg ship nevertheless.

938. *Mr. Milner Gibson.*] If any party, not a Hamburg citizen, has any interest in the ship, that prevents her from coming within the privilege of exemption?—Yes; exactly.

939. How does the Stade duty affect the coal trade?—On coals the Stade dues are indeed decidedly injurious to British exporters.

940. How much does the Stade duty on coals amount to?—The average proportion on the value is calculated to be 4 per cent.; and in a recent case I can prove it to have been 8 per cent.

941. Can you give an instance where it amounted to so much?—Yes.

942. *Chairman.*] What is the duty per ton?—It is 1 pfennig per cent. weight.

943. How much is that of English money?—It is the 12th part of a groschen.

944. Can you tell us in English money how much the duty is per ton upon coals?—It is as near as possible 3 *d.* per ton; a fraction less.

945. *Mr. Milner Gibson.*] You were going to mention a particular instance where the duty amounted to 8 per cent. upon the value?—A contract for 8,000 tons Lambton double screened has been made to supply a Hamburg foundry; the price paid free on board is 3 *l.* 4 *s.* per keel; the Stade duty amounts to 5 *s.* per keel, or nearly 8 per cent.

946. *Chairman.*] How many tons is a keel?—Twenty-one and a fraction.

947. *Mr. Milner Gibson.*] It amounts to nearly 8 per cent.?—It is 8 per cent. as near as possible.

948. Do German coals come into competition with British coals?—German coals are more and more coming into competition with British coals, and even exclude the lower qualities in the interior of Germany.

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*Vide Appendix.*

949. *Mr. Milner Gibson.*] Do you think that the Stade duty prevents the extension of the British coal trade and the employment of British colliers?—I do; I have here an invoice of 718 tons of that coal lately shipped at a freight of 7*l.* 5*s.* per keel (*delivering in the same.*)

950. *Mr. Fenwick.*] Does that invoice represent the ordinary coal traffic between this country and Hamburgh?—No, it does not.

951. Do you put it in as an exceptional case?—As the trade exists, I must consider it in proportion to the whole trade as an exceptional case. Suppose the Stade duties were taken off, it would not be an exceptional case in any manner; I am sure that more of these low coals would find their way to Hamburgh, and further on, if the Stade dues were taken off.

952. That invoice has reference to a low-priced coal?—That has reference to a low-priced coal.

953. Which is kept out in consequence of the Stade toll?—Yes.

954. And by competition of the German coal?—Yes.

955. *Mr. Milner Gibson.*] Do you think that the Stade duty prevents the extension of the coal trade and the employment of our colliers?—I consider the Stade dues a considerable impediment to the extension of the trade to Germany, and also a great disadvantage to the British shipowner.

956. Can you show how the Stade duty operates as a differential duty against British ships?—I can show it in the same case which I have named. The invoice which I handed in is one of 700 tons of a contract of 8,000 tons; it is the first shipment for the contractor, and the above-mentioned coal was shipped by the steamer "Viscount Lambton," at a freight of 7*l.* 5*s.* per keel, which steamer sailed on the 11th instant, this day a week; at the same time 7*l.* 10*s.* was offered by the same party to Hamburgh steamers, to save the 5*s.* per keel on the Stade dues. Either the English shipowner must take 5*s.* less, or he will not get the freight if there is a Hamburgh ship competing.

957. *Chairman.*] Do you know the price which was actually paid upon that transaction for freight; you have stated two prices; which was paid?—The price actually paid was, for the British ship, 7*l.* 5*s.*

958. £. 7. 5*s.* per keel?—Yes.

959. The price paid for the coals was 3*l.* 4*s.* per keel?—Yes.

960. *Mr. Hutt.*] What was the price of the coals per keel?—£. 3. 4*s.*

961. *Chairman.*] Therefore the price in the case of the coal, which you have described as screenings, was only about half the value of the freight?—Just so.

962. The general run of coal is much more valuable than that?—Certainly, about double the value.

963. What is the proportion of these screenings which are imported into the Elbe; that is, in proportion to the general coal trade?—The largest bulk of coals imported into the Elbe I value at the price of 6*s.* 6*d.* to 7*s.*

964. Can you tell us what the average value of a keel of coals, shipped free on board, is in Northumberland and Durham?—6*s.* 6*d.* to 7*s.*, free on board, on an average.

965. *Mr. Fenwick.*] On the average, leaving out the small?—Leaving out the small.

966. *Chairman.*] And the average freight about 7*s.* per ton?—The average freight in this instance is 7*s.* a ton, and we shall not get it cheaper even in common colliers.

967. Then this duty of 3*d.* a ton, taking the value of the freight and the article together, is about 3*d.* upon 14*s.*?—It is so.

968. Has the coal trade of the Elbe increased or decreased lately?—The coal trade of the Elbe began decreasing in 1857; but there can be no doubt whatever that the general consumption of coals in those places which used to be supplied from Hamburgh has considerably advanced.

969. *Mr. Milner Gibson.*] Have the German coal mines increased in working of late years?—They have.

970. Can you give the Committee any information upon that point?—I have a map here, showing the situation of the coal mines in Germany, by which it will be seen how they are situated with respect to the industrial districts of the North of Germany.

971. Will you state the names of the places?—The Silesian coal, as well as the Westphalian coals, have found their way lately as far as Magdeburg, which is one of the principal places for the consumption and for the sale of coal. The import

import of coal to Hamburg has been a little decreasing already, as shown in 1857, and it ought to have been increased considerably, seeing that so many towns are now provided with gas, and so many more factories springing up there, and railways extending: there cannot be any doubt that if the Stade dues had been taken off, there might have been an extension of the trade, instead of a small reduction.

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972. *Mr. Villiers.*] Are we to understand you, that English coal has diminished, and that coal from Westphalia and Silesia has increased?—Certainly.

973. And that during the year 1857?—I have no doubt of it.

974. Not before?—Not before; it is only a trifle; I can give you the figures, if you please. The import of coal in 1856 was 493,386½ tons.

975. Imported where?—To Hamburg.

976. For consumption at Hamburg?—No; by far the greater part goes up the river. In 1857 it was 486,325½ tons, which is only a small reduction; however, there ought to have been a large increase, in my opinion.

977. Does it follow, as a matter of course, that those places to which the coal was destined before have not consumed English coal, or that English coal has not reached to these places by other means?—I have not the statistics; they could not reach it in any other way, in my opinion, than by the Elbe.

978. *Chairman.*] Do they go by Hamburg?—I cannot state that; I do not know whether the import by way of Hamburg has increased.

979. *Mr. Villiers.*] Your conclusion is entirely drawn from the decrease of the importation of English coal in 1856 and 1857 into Hamburg?—It is.

980. *Chairman.*] They could go up the Elbe from Harburg as well as from Hamburg, could not they?—They could, but I do not think the Harburg coal trade has increased.

981. *Mr. Milner Gibson.*] Can you show that British shipping to Hamburg has fallen off generally in proportion to that of other countries?—From official statistics, I can prove that the relative share of the British tonnage in the total tonnage employed in the Hamburg trade has amounted in each of the three years 1849 to 1851, to 62 per cent., and has come down to 58 per cent. in each of the last two years.

982. What was 62 per cent. has become 58 per cent.?—Yes.

983. Foreign shipping has increased, in fact, in a greater proportion than British shipping in carrying on the trade?—Of course.

984. *Chairman.*] When you use the word “foreign shipping,” as contrasted with English shipping, you mean all foreign ships?—I mean all foreign ships, including Hamburg ships.

985. You do not mean Hamburg ships alone?—No.

986. Foreign ships pay Stade dues as well as British ships?—Just so.

987. How do you mean to apply the effect of the Stade dues to this alteration of the amount of British shipping?—I think the difference would be made up by the Hamburg flag being extended.

988. Can you give us the per-centage of Hamburg shipping in the respective years, and let us see what it amounts to?—I have not it here; I can deliver *Vide Appendix.* it another time.

989. Because that will enable us to judge whether the conclusion is sound?—If you will allow me, I will deliver it in another time.

990. *Mr. Milner Gibson.*] Is there a decrease in the exports of British goods to Hamburg?—There has been a decrease in the general British trade to Hamburg in 1857, compared with the preceding years.

991. Can you state the particulars?—Yes; in 1856 the import of twist and cotton yarns from Great Britain was 429,943 cwt.; in 1857 it was only 332,584 cwt.

992. *Chairman.*] At what date in 1857 did the smash begin in Hamburg?—The general import trade of Hamburg, as I mentioned before, has never been so large, neither in amount nor in weight.

993. But I am not asking as to the general trade; I am asking a simple question. At what period of the year did what is commonly called the smash in Hamburg commence?—In the middle of December. In the same period worsted and half worsted yarns came down from 111,671 cwt. to 89,735 cwt.; bar-iron came down from 383,575 cwt. to 322,634 cwt.; rails from 221,357 cwt. to 109,082 cwt.; pig-iron from 643,284 cwt. to 540,565 cwt.; yellow metal from 14,160 cwt. to 12,717 cwt.

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994. *Mr.*

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994. *Mr. Milner Gibson.*] Is there a decrease in the colonial produce shipped by England to Hamburg?—I can prove a similar decrease in most important articles of colonial produce for the last year against the preceding one. For instance, colonial sheep wool from 39,432 cwt. in 1856, to 37,454 cwt. in 1857; cotton wool from 270,521 cwt. to 175,796 cwt.; indigo from 8,665 cwt. to 8,020 cwt. I mention these articles, because it is well known that for colonial wool London has always been considered, and is still considered, the first European market, the same as it is with indigo; Liverpool is known to be the principal market in Europe for cotton wool; therefore it is well worth while to see that though the general import of colonial produce has been increasing in 1857, it has been decreasing in the same articles of import from British markets.

995. In fact, was the general trade of Hamburg falling off during the period of this decrease in the English trade?—As I mentioned before, we never had a year of so large an import in colonial produce as the year 1857 was.

996. I am speaking of the general imports?—From the general figures of 1857, though no official statistics are yet published, I am quite sure that the amount as well as the weight will prove to have been greater than in any preceding year.

997. And that was the year in which there was a decrease in the English imports?—Just so; both in British produce and in colonial produce, which we use to import largely.

998. *Chairman.*] From what sources are these statements that you have just quoted derived?—They are from the head officer of the Hamburg Custom-house.

999. Are they published?—They are published as far as the end of the year 1856; those which I named of the year 1857 are not published yet.

1000. Are we to understand you that the general value of the articles from this country to Hamburg decreased during the year 1857?—Yes; they decreased.

1001. It is not confined to the articles you have named, but it is general, is it?—I believe that the general import from this country, taken altogether, in 1857, may have been to the same amount as the preceding year, but I think it makes a great difference what articles are comprised in such import. First, there is British produce and manufactures; now there is a decided decrease, which cannot be made up in my opinion by another value imported from England, which is only by chance, simply because the market happened to be favourable, which may never happen again.

1002. Are we to understand it as a fact, never mind the reason, that you are of opinion that the gross amount of the value of British imports into Hamburg increased or decreased during the year 1857, as compared with 1856?—I can only have an opinion, because nothing is published, but, as I told the Committee before, there has been so great an increase of the imports in value, particularly in 1857, against every other preceding year, that I should not wonder if the imports from Great Britain had at least not decreased.

1003. Have you had access to official sources, from which you have picked out those particular articles which you have stated?—No; if I had known the question would be asked, I would have been prepared to give the particulars. I am still ready to give them to the Committee as soon as I go home.

1004. But you are not prepared to say that the general import of British articles decreased in 1857?—I am not prepared to say that it decreased, and I am not prepared to say it increased.

1005. You do not know one way or the other?—No; but my impression is that it has decreased.

1006. *Mr. Vittiers.*] That is, on the whole?—That is, on the whole.

1007. *Mr. Fenwick.*] Do those articles which you mentioned form a large proportion of the whole imports from England?—They do.

1008. In those articles you mentioned, you state that there has been a great falling off?—A great falling off, particularly as far as British produce and manufactures are concerned.

1009. *Chairman.*] You have stated that there has been a great decrease in articles brought in British ships as compared with foreign ships; that colonial produce brought in British ships was not so large in 1857 as it was in 1856?—Not quite.

1010. When you made that statement, did you include in the colonial produce that came in British ships colonial produce that came from this country, or only that produce that came directly from the country of its origin?—If I speak

of

of British tonnage, I speak of the tonnage in British ships coming from any country in the world. As soon as it comes to Hamburgh, I consider it to come under that denomination.

1011. For instance, cotton comes first to Liverpool, and then crosses England, and is transhipped at Hull for Hamburgh; that you would count as cotton coming in British ships?—I would, certainly; that is to say, if it came in a British ship.

1012. And that is taken into the calculation, is it, which you have given us of the decrease of colonial articles coming in British ships?—Yes.

1013. That is taken in?—Yes.

1014. So that it is not merely a decrease of ships with produce from New Orleans, or from the Brazils direct, but wherever it comes from?—Yes; on the contrary, I am pretty sure there is more import of some of the articles I named, direct from the colonies, and less from England.

1015. Mr. *Villiers*.] More than there used to be?—Yes.

1016. *Chairman*.] More in British ships, or in foreign ships?—I do not know that; generally speaking, I can only speak of the quantity imported; there is more cotton imported from the colonies you will find, in 1856 and 1857, than in any year before.

1017. Mr. *Villiers*.] How do you rank that which comes here for orders, arrives in the Channel for orders, for example, cotton or sugar, or any other colonial produce; when that comes to Hamburgh is it entered as British goods?—The port where the ship is cleared is considered as the place of shipment.

1018. That would be England?—No; that would not be England; that would be the colonies.

1019. Mr. *Milner Gibson*.] Can you tell the Committee what proportion of the exports of British produce to foreign countries goes to Hamburgh?—The importance of the Hamburgh trade for Great Britain may be proved by the following figures, taken from the official Hamburgh Statistical Tables, of which I would beg the Committee to allow me to give in a copy, and which prove that until the beginning of 1857 the relative amount of imports from Great Britain to Hamburgh, in comparison to the total import by sea, has been 60 per cent. in the 12 years from 1845 to 1856, and likewise 60 per cent. in the year 1856; there is scarcely any variation in the proportion during all those years; I beg to remark, that bullion is always excluded in these calculations, because I cannot consider bullion as merchant's goods. (*The Witness delivered in the Tables.*)

*Vide Appendix.*

1020. *Chairman*.] The Stade dues have existed during the whole of that time?—The Stade dues have existed during the whole of that time.

1021. Mr. *Fenwick*.] But the Sound dues were removed last year?—The Sound dues were removed last year, and they began to operate in the middle of the year.

1022. Mr. *Milner Gibson*.] Will you proceed to answer the remaining part of my question?—I think it is also worth the consideration of the Committee, that according to the annual statement of the trade and navigation of the United Kingdom with foreign countries, &c. for 1856, the value of the export of British produce to foreign countries was as follows: In 1854 the total amount was 63,333,000 £., of which to the Hanse Towns there was 7,418,000 £. In 1855 the total amount was 69,135,000 £.; to the Hanse Towns 8,350,000 £. In 1856 the total amount was 82,527,000 £., of which to the Hanse Towns there was 10,135,000 £., which shows that the Hanse Towns absorb about 12 per cent. of the aforesaid trade; and as it is a known fact that Hamburgh alone has about nine-tenths of the trade between Great Britain and the Hanse Towns, it may be said that Hamburgh alone absorbs at least 10 per cent. of the whole trade of the United Kingdom in British produce to foreign countries.

1023. Is the exemption of the Hanoverian port of Harburg from Stade dues of importance to British commerce?—I do not consider that the exemption of the Hanoverian port of Harburg from the Stade dues is now, or is likely to become of any practical value to the British trade.

1024. What do you consider to be the disadvantages connected with the port of Harburg?—The disadvantages of Harburg are, first, the impossibility for ships of deeper draught of water to reach that port; secondly, the inconvenience of the cumbrous custom-house laws of the Zollverein met with at Harburg in comparison with the well known liberal treatment in Hamburgh. That, thirdly,

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the unfavourable geographical position of Harburg in comparison with Hamburg, which latter naturally always will be according to its situation on the northern bank of the river, the central point for the whole north. Fourthly, the difficulty in obtaining return freights from Harburg to England, which would oblige the captains to go to Hamburg to get goods for their home voyage.

1025. *Chairman.*] As a fact, has the British trade to Harburg increased or not since it has been made free of Stade dues?—I am not in possession of Harburg statistics, but I should like to know to what period the question refers. I can deliver to the Committee a map or chart of the mouth of the Elbe from the sea up to Hamburg, which will show the relative position of Hamburg and Harburg, and at the same time all the lights, buoys, and other river works furnished and maintained by Hamburg—(*delivering in the same*).

1026. Is that corrected to the present time?—Yes; it is down to the latest date; you will see here every buoy and every light all the way up, and you will also see the situation of Harburg in comparison with Hamburg.

1027. *Mr. Villiers.*] How many miles is it from Hamburg to Harburg?—Not more than three miles.

1028. *Mr. Milner Gibson.*] Does Hanover contribute to the improvement of the navigation of the Elbe, or its maintenance in any way?—No; it is not true that Hanover contributes anything towards keeping the stream of the Elbe in a navigable condition. I do not know of any river works provided or kept by Hanover for the purpose of improving the river.

1029. *Mr. Villiers.*] Does the river require it?—Certainly; but the works are all made by Hamburg. There are dykes on the Hanoverian as well as on the Danish bank; but those are exclusively intended for the protection of the country against overflowing.

1030. *Mr. Milner Gibson.*] Does Hamburg levy any transit duty on goods imported into Germany?—It does not levy any transit duty on any goods transported either to Germany or any other part of the world; all goods on transit are perfectly free from duty. But certain goods when sold in the Hamburg market, if they change owners there, pay a financial duty of one half per cent. *ad valorem*.

1031. Is that a transit duty?—No; there is no transit duty paid whatever; nothing of the kind. This import duty is only paid on certain articles; the article of twist, which is of so great importance to the English trade, is free, and sheep wool is free, and many other articles are also free.

1032. Can you state how much the per-centage of Stade dues actually levied amounts to on the average upon British goods?—I am of opinion that the per-centage of the Stade dues paid on imports from England averages fully a quarter per cent. *ad valorem* on the articles which are subject to pay duty; bullion always excepted.

1033. *Mr. Villiers.*] Does bullion pay any duty?—Yes; it pays one-sixteenth per cent. *ad valorem*, and it is the only *ad valorem* article in the tariff; all other things are charged by weight.

1034. You do not include that in your calculation?—No; I do not think it is well to include it; I think it is well to leave it out of all the calculations.

1035. *Chairman.*] You make the average charged upon the imports to be one quarter per cent.?—One quarter per cent.

1036. Taking the aggregate of British imports?—Yes.

1037. *Mr. Fenwick.*] Do you take into your calculation of the average the article of coals?—Certainly; my calculation excludes only bullion; it of course excludes also the amount of those articles which do not pay any duty at all, according to the tariff. For instance, I calculate in this way: last year the imports we know by the official tables were about 12,000,000 £, from England to Hamburg, in value. Now, I would take off about 500,000 £. for those goods which do not pay any duty at all.

1038. *Chairman.*] Can you put in a list of those goods which do not pay duty?—It is in the treaty.

1039. *Mr. Villiers.*] I presume they are exempted by the treaty?—Certainly; I say that out of those 12,000,000 £. of imports, the value of those goods exempted by the treaty, imported in 1857, I make out to be between 400,000 £. and 500,000 £.

1040. The value of goods exempted?—Yes.

1041. *Mr. Fenwick.*] You were going on to argue from that statement?—

Deducting



Deducting 500,000 *l.* from the 12,000,000 *l.*, I then take off 1,000,000 *l.* for bullion, which is about the amount which is imported, and then, I think, you must take off another half million for goods imported under the Hamburg privilege; that will make a sum of about 10,000,000 *l.* worth of imports paying duty; and one quarter per cent. upon that will be about 25,000 *l.*; that is the sum which I calculate England has paid in the corresponding year, always speaking of the year 1857.

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1042. *Mr. Greggs.*] Are you able to distinguish the amount charged upon coals from the amount charged upon other goods?—Yes.

1043. Can you state how much of that sum is charged upon coals?—The amount of duty paid upon coals in the year 1856, calculated by the official weight given, would represent 5,500 *l.*, from which there must be a sum taken off for what is imported under the Hamburg privilege. The amount of that I do not know; but it cannot be very much.

1044. *Mr. Villiers.*] Then your tables would not distinguish how they were imported, whether in British vessels or in exempted privileged vessels?—No, they would not.

1045. *Mr. Milner Gibson.*] Do you consider that the transatlantic and foreign shipping of Great Britain is affected disadvantageously by the Stade dues?—It is not only steamers and colliers that are suffering by the Stade dues, but also the transatlantic and foreign shipping of Great Britain; for instance, in the Brazil trade, as the duty on coffee amounts to 2*s.* 6*d.* per ton, where the freight averages during the last years about 30*s.*, it is clear that a Hamburg captain has an advantage to that extent above the British ship. If I give an order to an agent at Rio de Janeiro for so many bags of coffee, my agent knows, or if he does not know, I should write to him to say, that if he can find a Hamburg ship, he can give 2*s.* 6*d.* more per ton than if he is obliged to take a British ship; the freight averaged about 30*s.* last year. The same is the case to the amount of 2*s.* per ton for shipments of cotton and cocoa-oil from Bombay and Cochin, and 4*s.* per ton on tea from China, &c.; and so it will be, of course, more or less, on other articles of colonial produce. They are all charged with the Stade duty, and there will be always that difference between the British shipowner and the Hamburg shipowner, if the British shipowner has to compete with the Hamburg ship going to the Elbe on account of Hamburg merchants.

1046. *Mr. Villiers.*] Can you state whether the Hamburg ships have increased much in number these last few years?—Hamburg ships have increased very much lately, in the last four or five years particularly.

1047. Can you give the Committee any particulars to show that they have done so?—I can furnish the Committee with a statement to that effect before I leave London, but I have not it here; it is a very large increase.

1048. Can you state whether that increase has been of vessels which are exempted from the Stade toll?—As far as I know all of them are exempted from the Stade toll, steamers only excepted.

1049. How do you mean steamers only excepted?—Because the steamers generally belong to joint-stock companies.

1050. And they have not the privilege?—They have not the privilege unless all the owners of the shares live within the walls of Hamburg; but the shipping trade in Hamburg, as to sailing vessels, they nearly all belong to one or two owners.

1051. You mean that it is a fact that they generally do belong to one or two owners?—Yes; they do not like in Hamburg, as they do in England, dividing sailing vessels in shares between them.

1052. What is the extent of your information as to the increase of Hamburg shipping; do you know that steamers have increased more than other vessels?—No, I do not say so.

1053. Can you state the contrary?—Yes; I can say, that the others have increased to a larger degree from year to year.

1054. Since when?—For the last four or five years at least.

1055. From the year 1852 or 1853 to the present time?—Yes.

1056. Do you connect that in any way with the Stade dues?—Certainly it would stimulate to build ships or to buy ships; I always think that I have a better chance than if I have to carry my goods in a foreign ship; and even in foreign countries there are always full cargoes for Hamburg.

1057. But you do not wish the Committee to believe, that three or four years ago



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ago shipowners of Hamburg began to build ships, in order to extend their trade in competition with other vessels which have to pay Stade dues?—I did not say so at all; but I consider what the chance is, and I do not forget any chance; it is all ways a chance.

1058. But we want to know the extent to which this privilege which Hamburg possesses is being turned to account now, as against the English trade; can you give us any information upon that matter?—It is quite impossible, in my opinion; you cannot have any statistics about it; it is not proved.

1059. *Chairman.*] Owing to the war, the general rate of freight increased all over the world, did it not?—Certainly.

1060. And that stimulated the building of Hamburg ships, as well as other ships, I presume?—I have no doubt it did.

1061. *Mr. Villiers.*] Can you give us any particulars about the competition which you state is now going on in the supply of coals; can you, in the first place, state whether the supply of English coals has fallen off?—The supply, as far as Hamburg has been the medium of supply, I have shown the Committee has fallen off.

1062. But that means that the import of coals was less, not that the consumption in Hamburg was less?—The consumption, I am persuaded, has been more all over the continent generally.

1063. Has the consumption in Hamburg been greater of this coal which, you say, is produced in Germany?—In Hamburg we cannot consume any other coal than British coal, that is quite impossible; the freight is so great an item, that even the lowest priced German coal, at the pits, they would not be able to bring so far north as Hamburg to compete with the British coal.

1064. But just observe what you say; you state that the consumption of coal in Hamburg has increased, but that the importation of coal from England has diminished?—Yes.

1065. That is not quite consistent if England supplies Hamburg exclusively?—The town of Hamburg I mean; if I speak of the Hamburg trade, I speak of the trade not only for Hamburg consumption, but for the much more important trade which is carried on through Hamburg to the whole of Germany.

1066. Then is it, that you think that the trade of England with the north of Germany has fallen off?—Yes; I take it that Magdeburg is the point where the competition arises between the English coal and the German coal.

1067. Do you mean to say that part of the coal used to go to Magdeburg, that formerly was sent from England to Hamburg?—Yes; they send quantities of English coal still to Magdeburg, and also to Berlin; but I do not think that any of the German coal can go to Berlin; the Elbe does not go so far.

1068. Any coal going from England now to Berlin, would go to Stettin, would it not?—Yes; it is a natural course, and I think it always has been.

1069. There is a positive advantage now in going to Stettin; they had formerly to pay the Sound dues, which they do not have to pay now?—I cannot speak to that, not being a coal merchant, but my impression is, that even under the existence of the Sound dues, the coals which were destined for Berlin and Stettin itself used to go through the Baltic, through the Sound.

1070. Then you do not believe there has been a greater export to Stettin than there was before the abolition of the Sound dues?—No; not more than the increased consumption of coal has caused.

1071. But that is a matter of opinion; you have no facts to support it, have you?—No; I have no statistics; the question as to Stettin and Berlin, I presume, only refers to coals.

1072. We have had it in evidence, that coals, as well as other goods which used to go to Hamburg, and thence to the north of Europe, now go to Stettin, because they do not pay the Sound dues; have you any reason to doubt the accuracy of that?—I am not in a position to state the contrary, but I should not have thought so.

1073. Do you know anything of the quality of the coal which you call the Westphalian and the Silesian coal?—The Silesian coal is, generally speaking, of an inferior quality, and therefore the English coal is taken by many consumers though it is so much dearer; they pay a higher price for it, because it is a superior article; there are many manufacturers where the competition is not so strong in their way, that they need to look for a small saving, who prefer taking the English coals though the proportion may be against them a little in the price.

1074. Do

1074. Do you know any case in which the Westphalian and Silesian coal come into competition with the coal sent from England to Hamburg?—I know that in one and the same place, near to Magdeburg, there is a consumption of the different kinds of coal by different parties; one party will consume English coal, and another party will consume Silesian coal.

1075. Do you mean that they are coal of the same quality and the same price?—No, I do not mean that it is the same quality, and I do not mean that it is the same price, but one makes up for the other.

1076. You mean that there is an inferior coal which comes from Silesia, which some persons consume because they cannot consume better?—It is because they are cheaper; it is a question between the price and the quality.

1077. Mr. *Fenwick*.] If they found inland coal at a less price it may be worth the while of the manufacturer to use it?—Yes; it is from the different purposes for which the coal is wanted.

1078. Mr. *Villiers*.] I suppose there is no competition with Belgian coal, at least no competition with coal that used to go to Hamburg?—Certainly not.

1079. Do you know anything of Bremen?—No.

1080. You do not know whether the trade has increased between Liverpool and Bremen of late?—I do not think so; it is not the impression on the Hamburg 'Change that the trade from Liverpool to Bremen has increased, at least not more than to Hamburg.

1081. They send iron, do not they, from Liverpool to Bremen?—No, I think not.

1082. Bremen is on the Weser, is it not?—Yes.

1083. The Weser is navigable?—It is a large river.

1084. You do not know anything of the Bremen trade?—Generally speaking, I know as much about it as we know of competitors.

1085. But you have not been looking at it with a view to your evidence as to the general state of the trade between those two places and England?—Do you mean as to whether, on account of the Stade dues, goods would go to Bremen, which, if the Stade dues did not exist, would go to Hamburg?

1086. My question is, do you know anything of the trade between Bremen and England, as to whether it has increased or decreased?—I am not prepared to say.

1087. Have you any opinion as to whether the trade would go there at present if they found the Stade dues too onerous?—I think not; I do not think Bremen is a dangerous competitor to Hamburg in the English trade; the situation of Bremen is on the other side of the Elbe, and I do not think it would be a dangerous competitor.

1088. Have you any means of knowing whether the British trade with the North of Europe fell off in 1857?—I think it did; I do not know where the large amount of trade of which I showed you the falling off, has gone; I do not think that this large decrease is made up by any other course; there may be something to Stettin, and something to Harburg, and something to Bremen, but if you take it altogether, I do not think that those would have made up, or ever will make up the decrease which has taken place to Hamburg.

1089. You think it has fallen off generally; that it is not confined to Hamburg?—I do not say that. It may have increased a little in Harburg. If there are 20 ships more coming to Harburg, it is of course an increase to Harburg; but if there are a hundred ships of the same sort and size, and the same cargoes, coming less to Hamburg, the 20 extra ships coming to Harburg will not make up for the decrease to Hamburg; nevertheless, it is an increase for Harburg.

1090. You mean that you can show a positive decrease in the trade to Hamburg?—That I believe I can show.

1091. Mr. *Fenwick*.] How do you make the calculation that 5,500*l.* would be the sum paid for Stade dues upon coals in 1856?—I will give you the number and give you the weight, and that will show it; this is the weight in 1856, 493,386½ tons; and in 1857, 486,235½ tons, each ton being 21 Hamburg hundredweight. They have to pay a penny every hundredweight.

1092. Is that about an English penny?—No; it is only the 12th part of a groschen; but nevertheless, it amounts to the sum of 5,500*l.*

1093. What per-centage does that bear upon the value of the coal at the port of

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of export in England?—I stated it before. If you take the average price of coal, as I stated it in my opinion, to be 6*s.* 6*d.* per ton, and the Stade dues amounting to nearly 3*d.* a ton, it will show you that the amount of duty according to the value is four per cent.

1094. The general average of Stade duty being a quarter per cent.?—A quarter per cent. on the general average for all goods.

1095. So that coals are very much more taxed in proportion to their value than the generality of goods are?—No doubt of it; there is not one article in the trade which delivers so great a revenue to Hanover in Stade dues as coals. I can give you a few items to show that, if the Committee wish to see them.

1096. Upon whom, in your opinion, falls the loss of that 5,500 *l.* upon coals?—My opinion is, that so far as coals are concerned, the contractor on the other side, who will have a very small profit of course, the less from their being always large contracts, and very great competition, must try to save himself as well as he can; and he will be obliged to take as much out of the producer as he can get; and if that will not suffice, he must try to get it out of the ship-owner.

1097. Would this be the case, that when those coals are consumed at Hamburg, the loss would fall upon the consumer there; but in the case of those coals which come in competition at Magdeburg and other places with German coals, would, in your opinion, the loss in that case fall upon the producer of the coal?—My opinion is that the loss would just as well fall upon the producer of the coal if it was going to Hamburg, as if it was going further into the interior, because the competition is the same, and the Stade due is paid.

1098. I understand there is no competition with English coal at Hamburg?—No, not with English coal; I speak of the competition between the different contractors.

1099. Do Hamburg vessels take many coals from the northern part of this country to Hamburg?—They do, but not so much as might be done; the coal shipping trade is not very much liked in Hamburg. It is only a town, and shipping generally is only one of the less important branches of the trade.

1100. But there is a certain amount of shipping?—Certainly; there are a good many Hamburg colliers only carrying coals; but I mean to say if you would conclude that the Hamburg ships being exempt from paying any Stade dues, therefore the whole coal trade could be carried on under the Hamburg flag. On that question I would answer that that is not the case, because it is a trade not so much liked as to induce them to do it.

1101. As a matter of fact does not the Stade toll operate as a differential duty in favour of the Hamburg ship and against the English ship in the coal trade?—No doubt of it.

1102. And to that extent the owners of English ships engaged in the coal trade are injured?—Certainly.

1103. *Mr. Grogan.*] If the amount of the coal-duty payable at Hamburg were subtracted from the 25,000 *l.*, the amount of the Stade dues which you describe as being paid in 1856, what would be the per-centage charged upon the remainder of English goods that paid Stade duty?—That is a matter of calculation. If the 5,600 *l.*, which is shown to be about the amount paid upon coals, were subtracted, it would leave about 20,000 *l.* for the remainder; the value of the coals, including freight, imported into Hamburg in 1856, was not quite 6,000,000 of marcs, reduced into sterling would be about 450,000 *l.*; the value of the coals imported into Hamburg, freight included, I calculate to be about 450,000 *l.*

1104. Deducting that amount from the sum total on which Stade dues are charged upon British goods, what would be the proportion charged upon the remainder of the goods?—I make it to be two-ninths per cent. on the remainder.

1105. *Mr. Fenwick.*] That is a little less than a quarter?—A little less than a quarter. I make it two-ninths per cent.; but perhaps you may say one-fifth; it is just as near the one as the other; it is between one-fifth and two-ninths.

*John Ward, Esq., called in ; and Examined.*

1106. *Chairman.*] YOU are resident in Germany?—I am Her Majesty's Consul-General in Saxony, resident at Leipsic.

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1107. I think some years back you were engaged upon a commission on the Stade tolls?—Yes.

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1108. In what year?—In the year 1841.

1109. *Mr. Hutt.*] Where did the commission meet?—The commission met at Hamburgh.

1110. Did you submit any proposition to that commission on the part of Great Britain?—When we met at Hamburgh, the first business was to decide on a basis for the revision of the tariff. The two Governments had already agreed that the tariff should be revised, and consequently the first proceeding was to find a basis for that revision. I, having considered the subject, proposed one-sixteenth per cent. as a general basis for the revision, one-sixteenth per cent. *ad valorem*. The two Hanoverian commissioners, on the other hand, refused to admit any general basis, but proposed to take the actual tariff in force as the basis, and to revise it item by item. The ground on which I proposed one-sixteenth per cent. as the basis, was the treaty between Sweden and Hamburgh, dated the 17th of March 1691, sometimes called the Stade Recess, to which is annexed a tariff which was published officially on the 15th of August 1692. I had already ascertained that in a still earlier tariff, namely, in the year 1606, the same basis of one-sixteenth per cent. had been adopted. The Hanoverian commissioners refused to admit that basis, and, as I mentioned before, would take no basis but the tariff as it stood. Now the Stade tariff, as I have stated, consisted of an immense number of rates; there were no less than 6,688 items of charge; perhaps such a tariff never existed in any other country; consequently, even if I had not found the legal basis to have been one-sixteenth per cent., it would have been an interminable work to revise a tariff of such a description. We reported the proceedings to our respective Governments, and Hanover, through the Hanoverian Minister in London, addressed the Government of that day, protesting against my proceedings, and stating certain objections to a revision upon the basis which I proposed. Lord Palmerston referred the Hanoverian objections to me, and desired me to make a report in answer to them. I did so, and I answered them in the following way: The Hanoverian objections were, briefly, first, that Great Britain had assumed the office of judge in an international question between Hanover and Hamburgh. Secondly, that the toll was a very ancient one, which had been confirmed by the peace of Westphalia in 1648. Thirdly, that the treaty of 1691 had never been acted upon, and ought never to have been acted upon, being so strongly injurious to Hanover as to be in fact inequitable. Fourthly, that the toll was a sea toll and Hanover had a right to fix her own tariff for that. Fifthly, that the toll was a river toll, and had been communicated by Hanover to the river bordering states of the Elbe; therefore Hanover contended that under those circumstances, and considering the long acquiescence of Great Britain in these charges, it was unfair to press her to reduce them now to one-sixteenth per cent.

1111. Were your proceedings approved of by the British Government?—They were approved of. I answered the Hanoverian objections in the following way: First, by showing that England had in no way assumed the office of judge, but that Hanover herself had willingly consented to the revising commission: Secondly, that Hanover had failed to identify the present tariff in any way with the ancient toll granted by the Emperor, which had been confirmed by the peace of Westphalia: Thirdly, I showed that the law of nations declares any treaty to be valid which is not executed under duress, that is under pressure, or in a fraudulent way, and that was not the case certainly with this treaty. I also showed that the Recess of 1691 had been acted upon both by Sweden and by Denmark, and by Hanover herself. I showed that if it was a sea toll, the only rule of charge was that mentioned in the treaty of 1691, but that if it was a river toll, Hanover had no title at all, because it had never been regulated or confirmed by the river bordering states of the Elbe, consequently I showed at some length, and in a manner which was satisfactory to the then Government, that the title of Hanover was bad to anything beyond one-sixteenth per cent.

1112. What was the result of your representation?—The result of my representation was, that the Government addressed a note to Hanover, adopting my report,

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report, and insisting that Hanover should instruct her commissioners to revise the tariff upon the basis proposed by me.

1113. Did Hanover comply with that request?—Hanover, after some consideration, absolutely refused to do so, and the consequence was that the commission separated, and the proceedings came to no result.

1114. *Chairman.*] There was no question raised at that time as to the right of Hanover to any toll at all, but the dispute was whether the toll was to be revised upon the basis of one-sixteenth per cent. according to the treaty to which you have referred?—We admitted that Hanover had a right to something; the question was how much.

1115. Was that question distinctly admitted, or was the negotiation carried on without prejudices to the right either way?—There was no question that Hanover had a right to something.

1116. *Mr. Hutt.*] You entertained then, and entertain now, I apprehend, no doubt as to the right of the King of Hanover to levy some tolls at Stade?—Certainly I was of opinion that Hanover had a right to tolls.

1117. Did the state of things in which you left them at Hanover remain till 1843?—The Hanoverian Government afterwards addressed itself to the Government of this country to propose a new negotiation, and stated at the same time that it was her intention to submit the tariff to the revision of the Elbe bordering states.

1118. *Mr. Villiers.*] This was in 1843?—This was in 1843, and she did so; a meeting of the Elbe bordering states was held in Dresden in 1843, and on the 13th of April 1844, the Elbe bordering states made an award or a resolution regulating the Stade or Brunshausen tolls.

1119. *Mr. Hutt.*] What was the normal rate which governed the Stade tariff?—The Elbe bordering states took one-fourth per cent. as the basis upon which they regulated it. I should state, however, that the treaty between England and Hanover, dated the 22d July 1844, which is founded upon the Elbe commission, gives to England an abatement of one-third per cent. on certain articles of British manufacture, as you are aware.

1120. *Chairman.*] Was the basis upon which the Riverain commission settled the Stade dues, one-fourth per cent. upon all articles alike?—Some articles are exempt, others pay more.

1121. Taking out the excepted articles that paid nothing, the general rate was one-fourth per cent.?—There are some which pay more, but the general basis is one-fourth per cent.

1122. Is the quantity that pays more than one-fourth per cent. large?—The articles are specified in the treaty; they are not numerous.

1123. *Mr. Villiers.*] What was the basis when you met at Hamburgh?—One-sixteenth per cent.

1124. *Mr. Hutt.*] Consequently the basis adopted by the Dresden commission was double the amount of that to which you considered Hanover was entitled?—It was more than double, it was quadruple; it was four times as much.

1125. Was the tariff of 1844 an improvement on the old tariff?—It certainly was.

1126. In what respect?—In many of the articles there were material reductions made, where the old tariff gave much higher rates.

1127. Still do you consider the new tariff satisfactory?—I consider it an improvement, though not satisfactory altogether.

1128. *Mr. Villiers.*] You say a treaty three months afterwards was signed between England and Hanover?—Between England and Hanover, by which England obtained the advantage of one-third upon certain articles of British manufacture.

1129. Taking the basis adopted at Dresden?—Yes.

1130. What was the mode of imposing the duty; was it by weight or *ad valorem*?—The tariff is by weight, but the principle upon which the new tariff was made was upon the basis of *ad valorem*; that is, the weights were calculated, so that it should be one-fourth per cent. *ad valorem*.

1131. *Chairman.*] Then it was adjusted to be taken by weight, but upon the footing that the weight was to be so adjusted as to make it according to that per-centage *ad valorem*?—Just so.

1132. Can you tell us when that principle was fixed?—It was fixed at Dresden in 1844.

1133. The

1133. The principle of one quarter per cent. was fixed at Dresden?—Yes; and it provides that at the end of every 25 years there shall be a further revision upon the principle of one quarter per cent. upon the value; they adopted one fourth per cent. as the basis of the tariff.

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1134. The rate being fixed upon that principle of turning value into weight, as the mode of levying the duty, every 25 years that is to be revised, to see if the relative proportions between the weight and the value alter?—Yes. I was going on to state that there are several objections to the treaty of 1844. The first is, that the basis was too high, and that in practice they charge many articles still higher; the next objection is, that a declaration upon a cocket of the goods is required, whereas the invoice ought, for all purposes of the trade, to suffice.

1135. Mr. Hutt.] What is the difference between the cocket and the invoice?—The cocket is a custom-house document, under the seal of the custom-house authorities, upon parchment, and which it requires some trouble to get, and which is much more formal, and causes delay. The invoice is a mere bill of parcels of the merchant. The merchants do not seem always to know that a cocket is required.

1136. Chairman.] The cocket is an official document from the custom-house?—The cocket is an official document from the custom-house, signed by the collector.

1137. The invoice is merely an account transmitted by the merchant who sends the goods?—Yes. I submit that it is wholly unnecessary to require a cocket.

1138. Mr. Hutt.] Are there any other subjects of complaint connected with the Stade dues?—Yes; the pound at the place of lading is taken as the standard of weight, which operates unfavourably towards British goods, because the British pound is much smaller than the German; 110½ lbs. avoirdupois are equal to 100 lbs. Hanoverian toll weight. The consequence has been that they pay 10½ per cent. more than they ought to pay.

1139. Do they pay upon the English pound?—They pay upon the English pound; that I think is wrong.

1140. Mr. Grogan.] The Hanoverian toll is on the hundredweight, and 110½ of our pounds go to the hundredweight?—The duty is charged upon the pound weight at the port of lading.

1141. Mr. Villiers.] The duty upon such an article as coal is by weight?—Yes. Another objection to the treaty is the provision that where the weight of the goods is not divisible by 25, the Stade customs are entitled to charge for a quarter of a hundredweight. In that way they get rather more than they ought.

1142. Chairman.] There is no fraction less than a quarter of a hundredweight?—No.

1143. Is this principle of turning value into weight consequent upon the treaty of 1844; or is it consequent upon the Riverain Commission at Dresden?—It is necessary to charge by weight, but it was desirable to fix a basis, and that can only be expressed by using the term *ad valorem*, in order to enable the commissioners to revise it at a future time, at the end of the different periods of revision, that they may know upon what principle to proceed. We should have done the same if we had revised the tariff in 1841. We should have first fixed the amount *ad valorem*, and then revised it according to the weight.

1144. Then, if the treaty of 1844 had not existed, or if it was to be done away with, still the same mode of levying the tolls, subject only to the loss of the exceptions which we now enjoy, would remain under the Riverain Commission?—It would remain. The act of the Riverain Commission is not in any way affected by our treaty, but the treaty is of advantage to us.

1145. If the treaty was removed altogether, this inconvenience of the weight of 100 lbs. against 110 lbs., and other matters which you have named, would still remain?—Certainly.

1146. Mr. Villiers.] It is no disadvantage to us, in many cases, to pay by weight?—It is no disadvantage.

1147. Sir James Graham.] Has the conversion of the *ad valorem* duty on coal into weight acted beneficially or otherwise to the British coal trade?—The fact of the matter is, that coal is charged too high; it pays much more than one quarter per cent.; therefore in that respect the Hanoverian authorities seem to go beyond the intention of the treaty.

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1148. When the conversion took place of *ad valorem* into weight, did the Stade Commission except coal or not?—Coals are an exception from the basis.

1149. Do coals now pay by weight or *ad valorem*?—They pay by weight; but the authorities are not forced to revise them upon the basis of one-fourth, and therefore they are legally entitled to take more than that basis.

1150. Was that exception in the original treaty of 1844?—It is in the treaty; coals are specially excepted by it.

1151. Therefore whatever the duty levied on coal may be, it is in conformity with the treaty of 1844?—It is in conformity to the legal terms of the treaty of 1844, but it is contrary to the spirit.

1152. The discovery of its being contrary to the spirit, is a discovery made since the treaty?—Perhaps so.

1153. Mr. Villiers.] Upon all manufactured goods I presume it is an advantage, as they are constantly being produced more cheaply; in fine goods it is an advantage to us to have the duty levied by weight?—Certainly.

1154. Mr. Grogan.] Suppose the treaty of 1844 were abolished, how would coals then stand?—They would stand exactly as they are. We have no treaty upon coals.

1155. Mr. Hutt.] This Convention of Dresden was under the authority of the Treaty of Vienna?—Yes.

1156. Does not the Treaty of Vienna state that the dues to be levied were to be regulated by the Riverain Commission, and should in no respect exceed the amount then levied?—It does.

1157. You are of opinion that the Sovereign of Stade had no right to a higher rate than one-sixteenth per cent., whereas the Riverain Commission appear to have established the normal charge of one fourth?—In 1841 I was of opinion that that was the only legal basis; but now, since the Elbe bordering States have revised the tariff themselves, I am of opinion that what they have done constitutes a legal rate of charge; they have not raised the rates; they have not contravened the Treaty of Vienna.

1158. Did they act in accordance with the article of the Treaty of Vienna to which I have referred?—They did; I think they were the sole judges. The Hanoverian Tariff of 1821, which was the existing tariff then, was much higher than the present.

1159. But not legally so?—It may have been legal or illegal; but still it was, *de facto*, in force.

1160. Mr. Villiers.] They proceeded upon custom, did not they, and upon old rules?—The Treaty of Vienna of 1815 says, that they shall not raise the rates levied *de facto*; they may reduce them, but they cannot raise them.

1161. Have they raised them?—No; they have reduced them.

1162. Mr. Fenwick.] Have we ever acknowledged the right of Hanover to charge more than one-sixteenth per cent.?—You have made a treaty with them, during the existence of which you have agreed to pay the rates in this tariff.

1163. But before that?—Not before that; but we had acquiesced for a very long period of time.

1164. Mr. Hutt.] But under protest?—I believe at times under protest.

1165. Under protest from the various States, I believe?—I have heard that there have been many protests.

1166. Mr. Fenwick.] When the article of the Treaty of Vienna says that the river bordering States shall on no account make the tariff higher than it was before, that means higher than was the right before?—No, I think not; it means what was *de facto* charged; it means that they shall not make the rates higher than they were actually levied in 1815.

1167. Would not that mean levied with the consent and approval of those who paid them: did not we protest again paying those rates?—I do not know whether we protested systematically. There may have been protests, but I do not know that we protested formally.

1168. Sir James Graham.] Is there any recorded British protest of which you are cognisant?—I am not aware of any formal protest on the part of the Government here, unless you can call the proceedings of 1841 a protest.

1169. Before the treaty of 1844, at the period of the Vienna contract?—I cannot speak positively to that.

1170. Chairman.] Has there been any meeting of the Riverain Commission of the Elbe since the period you alluded to, in 1843?—Yes.

1171. When



1171. When did it meet again?—There have been one or two meetings; there is to be another this year, but they have not materially altered the Stade tariff.

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1172. Have they at either of those meetings in any respect altered the Stade tariff?—Not at all; I think in no respect.

1173. Have they done anything at either of those conventions or meetings that would tend to prevent the reduction of what British goods pay in the event of the abrogation of the treaty of 1844?—I believe not.

1174. You think not?—I believe not; I should state that they only have the power of revising once in 25 years; I believe it stands in the convention just as it did since 1844.

1175. *Mr. Hutt.*] That convention expired in 1854?—That convention has now expired, and it runs on upon notice from year to year; it may be determined upon one year's notice.

1176. *Chairman.*] Have you any experience of the competition through the port of Hamburg to the various parts of Germany, and is it within your knowledge how that has been affected by the taking off of the Sound dues?—It is not within my own knowledge; I can only speak from public rumour.

1177. *Mr. Villiers.*] Have you any doubt of the right of this country, upon due notice being given, to waive the treaty, or cause the treaty with Hanover to cease?—This country has a right to terminate the treaty upon giving 12 months' notice.

1178. What is your opinion as to the position we should be in upon the expiry of the treaty?—I am afraid you would be the losers by giving notice to terminate the treaty; you would lose the benefit of one-third upon certain articles of British manufacture.

1179. What is your idea of our position; that we should fall back upon those customary tolls or modes of levying duties upon British goods which used to exist before 1844?—I am afraid that that is no longer practicable.

1180. Upon what rule would they levy the duties?—They would levy the duties according to the Dresden Convention; England would then have to pay the full sum under the Dresden Convention.

1181. We only adopted that under the treaty?—You are bound by the Act of the Elbe Commission whether you make a treaty or not; you made the treaty for your own advantage.

1182. *Mr. Fennock.*] How are we bound by that?—Because every nation is bound by it; it is an act done under the authority of the Treaty of Vienna.

1183. It is a part of the Treaty of Vienna?—Yes, and a part of the public law of Europe.

1184. *Sir James Graham.*] If we gave notice to abrogate the treaty the coal would stand exactly as it now does?—Yes.

1185. *Mr. Villiers.*] Have you any idea what the effect would be upon the trade, supposing we could redeem the dues; would you say that there would be a sensible advantage felt by the exporters from this country?—I think it would be a most desirable thing for the British trade. It would relieve our trade from many of the encroachments, vexatious obstructions, and impediments which are continually arising, and must always arise while the system continues.

1186. You think those obstructions are considerable?—I think the obstructions are very considerable, and most vexatious; and they never will be otherwise.

1187. Do they give rise to any disputes?—They do give rise to disputes, which very frequently happen.

1188. Do they occasion any hostile feeling between the countries?—The Hanoverian authorities are the judges, so that we have no appeal to any one but themselves.

1189. Do you think it is likely to be a greater inconvenience to us in future than it has been?—I think it will not be diminished.

1190. It will increase with the extension of the trade?—Yes; besides which, allow me to say, that there are a number of duties now charged which are not in conformity with this basis of one-fourth.

1191. That is to say, the rate is higher?—That is to say, the rate is higher.

1192. We have had it variously stated, that we pay from 20,000 *l.* to 30,000 *l.* a year to Hanover. Have you any official account of what is the amount received on British goods by Hanover?—The aggregate of some years, from statements before me, is about 30,000 *l.*, except in the last year or two, when it has risen to about 40,000 *l.*



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1193. What do you say is the whole amount which is received by Hanover from those dues?—An average of 30,000*l.* per annum.

1194. From all States or from England?—From all States.

1195. What is it that England pays?—£. 15,000, upon an average.

1196. *Sir James Graham.*] Therefore, on the whole trade of the United Kingdom to Hamburgh, the matter in dispute, as measured in money, is 15,000 *l.* a year?—Thereabouts; in the last two years, something more.

1197. And coal, which is a very large article of export from this country to Hamburgh, does not depend upon this treaty at all?—It does not depend upon the treaty; it depends upon the Elbe Convention.

1198. Did I rightly understand you that the treaty, in your opinion, with regard to certain articles, was violated by an excess of charge?—I think the spirit is violated, because I think the spirit is that it should not be more than one-fourth per cent.

1199. More than one-fourth per cent. upon certain articles is charged?—Yes.

1200. Is not that a ground of official representation?—I think so.

1201. Has any official representation been made by the British Government in consequence of that?—I am not aware.

1202. Have the parties injured represented to the Home Government the fact of such excess?—I am not aware of that; what I particularly mean is, that in the event of capitalisation, the whole circumstances ought to be taken into account on both sides.

1203. *Mr. Villiers.*] Hanover is interested in things remaining as they are?—Yes, but I believe Hanover would not be indisposed to a capitalisation upon fair terms.

1204. Has any calculation been formed as to what would be required for the purpose?—Yes, I can show you one; this is a calculation which has been given to me confidentially by the Government of Hamburgh.

1205. *Chairman.*] It is a Hamburgh view?—It is a Hamburgh view; it makes the total sum required to capitalise, at four per cent., less 38 per cent., 447,593 *l.*; that is revenue capitalised at four per cent., the same as with the Sound dues. Of that, with the deduction of 38 per cent. for all those abuses and overcharges, the share to be paid by Great Britain upon that hypothesis would be 227,451 *l.* This is not a statement which has been submitted to Hanover in any way, or received her approval; it is an approximate statement, made out by the Government of Hamburgh, and considered confidential.

1206. And pretty generally circulated?—And pretty generally circulated.

1207. *Mr. Villiers.*] Is it thought to be fair among commercial men?—I think upon principle, by those who wish this capitalisation, it is considered a fair one, but I cannot say how far Hanover would agree.

1208. Have they put forward anything that they would consider as their view?—I believe not in any negotiation.

1209. *Sir James Graham.*] Is that the principle upon which the Sound dues were capitalised?—It is.

1210. *Chairman.*] Have you any knowledge of the relative trades between Hamburgh and this country, and Harburg and this country?—The trade with Harburg is a new trade, which has very much increased since Harburg was exempted from the duties; I am not able to state the exact amount.

1211. Has that increase been in any sense injurious to Hamburgh?—I say the trade with Harburg has increased.

1212. And if it increases, it is in competition with the Hamburgh trade to a certain degree, I suppose?—It is in competition with Hamburgh; whether it is an injury, is another question.

1213. *Chairman.*] As to the interest of Hamburgh in this question, the town of Hamburgh is very materially affected by it?—Of course.

1214. Taking the proportion; I am not putting now the amount of the trade, but taking the whole incidents of the tax, whether as it affects the producer or the consumer, what is your opinion of the relative onus upon the trade of Hamburgh and the trade of this country?—I presume that the tolls bear, in the first instance, upon the German consumer, but our trade is still a loser as respects many articles which are subjected to competition with similar articles of other countries, take for instance coals, and so on.

1215. But yet, I suppose, taking even the articles in which there is competition, it is a mixed question as to how far the incident of the tax falls upon the producer or the consumer?—It is a mixed question.

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1216. Just in proportion as that is a mixed question, is the trader of Hamburg, who is the pipe through which the goods pass into Germany, affected by this question?—Yes, in that sense; whatever relieves the trade of those delays, burdens, and impediments, which are now the case in the Elbe, must be a great benefit to British commerce, without reference to the amount paid.

1217. And also a benefit to the Hamburg merchant?—Locally it must be a benefit to Hamburg; the interest of Hamburg is a local interest.

1218. Do you know anything of the Weser?—Yes.

1219. Do you know whether there used to exist any tolls upon the Weser?—There was a toll at Elsfleth on the Weser, very similar to the Stade toll.

1220. Does that exist now?—No; it was many years ago bought out of the proprietor; the Grand Duke of Oldenburg was compensated for it.

1221. Who bought it?—The other States interested; they gave the Grand Duke of Oldenburg a territorial compensation.

1222. When you say the other States interested, what do you mean?—The States interested in the trade; I believe Bremen and other States were interested.

1223. Was England?—England I do not think paid anything.

1224. We were not asked to pay to it, were we?—I rather think not; but that was done many years ago. I believe it was in 1803.

1225. The German States, having the means of giving the Grand Duke of Oldenburg an increase of territory, thought it would be a good way of compensating him for the toll question, and it never occurred to them to ask the English or any other country to pay towards it?—Not at that time.

1226. The German consumers thought it fell upon them, I suppose?—I presume so; but the tolls at Elsfleth were a very small matter compared with those at Stade.

1227. They were less in amount, but similar in principle?—Yes, similar in principle, but less in amount.

1228. That was the mode in which the toll was got rid of?—Yes.

1229. Mr. Villiers.] Has the Weser always been navigable?—Yes, it has always been navigable, but for smaller vessels than the Elbe; it is now navigable, and regulated by the Navigation Acts, the same as the Elbe.

1230. But vessels of a considerable tonnage go up to Bremen, do not they?—They go farther; but higher up there is not so much water.

1231. Chairman.] Was this toll below Bremen or above Bremen?—It was below Bremen.

1232. Then all the trade used to pay it?—Yes.

1233. Have you any other matter with respect to this question which you think it is desirable the Committee should be put in possession of; you have heard the evidence which has been given to-day?—I have nothing further to state, except that from my long experience of the Stade question, I think it is extremely desirable to make some arrangement with Hanover by which the toll may be got rid of. I think that Hanover has, *pro tanto*, a legal right; but that she must be called upon to make some sacrifices, and to give up something, in order to bring about an arrangement for the mutual advantage of the trading States of Europe; therefore I think it very desirable, with that object, to negotiate with Hanover.

1234. Do you think that all the parties who are interested in getting rid of it ought to contribute according to their interests?—Yes; and I have no doubt that most of them would.

1235. Mr. Villiers.] Is there any maritime State that complains of it?—Yes.

1236. Do you know whether the United States complain?—The United States complain very much of it, and I believe they have threatened to take summary measures to get rid of it.

1237. That is, to force their way, I suppose?—They have threatened to do so; but whether they would do so or not of course I cannot say.

1238. If they did not pay, it would be a great disadvantage to others who did pay, would it not; they would get the carrying trade?—Yes; but I think the United States would come into the arrangement, as they did into the Sound dues compensation.

1239. They paid in proportion to their trade, as the other States did?—Yes. I think the right way would be to give notice to Hanover to determine the treaty, but to give notice at the same time stating that we do not desire to get rid of the treaty altogether, but merely to make a new arrangement with reference to that part of it which relates to the Stade dues.

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1240. That new arrangement might include the compensation?—It would be intended to include the compensation; but I should certainly not give notice absolutely to determine the treaty, because if we did, we should be losers.

1241. *Mr. Fenwick.*] If we gave notice to determine the treaty, what effect would that have upon the treaties of other States?—I apprehend none; they would continue to enjoy their advantages, and we should lose ours; that would be the only difference.

1242. *Mr. Villiers.*] What position should we be in if they showed more favour to those States than to us?—I think they would have a right to do so, because those States have made their arrangement with Hanover to get an abatement of one-third; if we lost our advantage by giving up our treaty, they would not lose theirs in consequence, therefore we should be at a disadvantage with them.

*Martis, 22<sup>e</sup> die Junii, 1858.*

MEMBERS PRESENT:

Lord Ashley.  
Mr. Blackburn.  
Mr. Bowyer.  
Mr. Fenwick.

Mr. Seymour Fitzgerald.  
Mr. Henley.  
Mr. Villiers.

THE RIGHT HON. JOSEPH WARNER HENLEY, IN THE CHAIR.

*Martin Pratt, Esq.*, called in; and Examined.

*M. Pratt, Esq.*

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1243. *Chairman.*] YOU are Secretary to the General Steam Navigation Company?—Yes.

1244. Where do they carry on their business?—In London.

1245. Have you any vessels engaged in the trade between England and Hamburg?—At present we have six vessels employed constantly between London and Hamburg.

1246. How many trips do you make in a year?—Last year we made 156 voyages with those six ships.

1247. Do you carry passengers and goods?—In four vessels we carry passengers and goods, and in two we carry goods only.

1248. In entering the Elbe do you pay the dues?—The cargoes carried by the Company's vessels are of course subject to the payment of the Stade dues.

1249. Can you tell the Committee what the incidence of that duty is, upon what kind of articles it is paid generally in your vessels?—You mean the rates and dues to which these cargoes are subject.

1250. I mean the character of the cargo which you generally carry from London, and the amount of duty payable upon the respective articles you generally carry?—I have furnished myself with a list of some of the articles we are in the habit of carrying; we carry general cargoes.

1251. You do not, for instance, carry coals?—No; general cargoes of merchandise and all descriptions of colonial produce, British manufactures, and so on.

1252. *Mr. Villiers.*] Just tell us in what mode the Stade dues affect you, in what way they are levied, and what it is you have to complain of?—Although the dues are eventually paid by the consignees of the cargo, in practice we are made the tax collector, and in doing so we run all the risk and consequences of any errors that may be unintentionally made in the return, or manifest as we call it, that is furnished by the captain, on his arrival at Stade, to the custom-house.

1253. Are they stopped at Stade when they arrive there?—Yes.

1254. What then takes place?—On the arrival of the vessels at Stade the captain is bound to send on shore, by a boat which attends from the Stade custom-house for that purpose, a manifest specially and carefully prepared by the broker in London, containing the particulars of the marks and numbers and contents of every package comprising the cargo.

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1255. That he brings with him from London?—Yes, and with it he deposits the captain's file of bills of lading and the London custom-house clearance papers.

1256. That is sent ashore by a man from your vessel?—Yes.

1257. Do you send him in your own boat?—No, they come off for him from the Stade custom-house.

1258. *Chairman.*] What do you pay for that?—We pay the boy's passage up to Hamburg; in the whole, I have estimated the expense at 14*s.* a voyage.

1259. How long do you stop?—Five minutes at the outside.

1260. Then the stoppage is not much?—No, it is not material.

1261. You are speaking of steam-ships?—Yes, of steam-ships.

1262. The complaints you make principally having the risk as the agent in performing those necessary duties to comply with the regulations?—Precisely.

1263. Supposing you do not comply with them; supposing any default happens?—Of course, unless we abide by the forms which are necessary and laid down, we should be fined in consequence; if we pass Stade without stopping, we should be subject to a fine; I believe it is 100 dollars.

1264. In the 156 voyages of which you have told us in the last year, how many times have you been fined?—Not once.

1265. How many times the year before?—Not at all the year before; in fact, not at all of late years.

1266. *Mr. Villiers.*] You know there are certain forms to be complied with, and you comply with them?—We do.

1267. And there is no trouble or inconvenience arising in consequence?—There is a great deal of trouble in collecting the Stade dues by our agent at Hamburg.

1268. *Chairman.*] What more trouble have you in collecting the Stade dues at Hamburg than in collecting the freight?—One inconvenience attending that is the delay which we are exposed to in delivering our freight notes; we collect the Stade duty with the freight, and we do not get the accounts from the Stade custom-house until about 10 days after the vessel has arrived at Hamburg.

1269. How long on the average does it take you to discharge a vessel?—Forty-eight hours.

1270. Then there is an absolute delay for the difference between the 48 hours and the 10 days?—Yes.

1271. I suppose there is not a delay of the vessel, but your agent collects the freight after the vessel has gone back again; do you wait for it?—No; of course the agent who has the account with him collects it afterwards.

1272. What is the practice with reference to the payment of freight?—The payment of freight due immediately.

1273. On delivery?—Within a reasonable time; within a short period.

1274. In practice, what do you call reasonable time?—I should say in practice, a month; an active agent should recover his freight in the course of a month.

1275. Then the 10 days is within the month?—Yes; but I speak only of the generality of merchants to whom we give credit.

1276. Still, I suppose you do not receive the freight as the things go over the vessel's side; there is some little credit given?—Yes, that is the usual practice.

1277. Is it a real delay in the collection of the freight?—It is a delay, decidedly; the agent cannot set about making out his freight-notes and distributing them until he has got the accounts from the Stade custom-house; he cannot do it. It is an absolute delay of 10 days before he can attempt to collect his freight.

1278. Having a copy of the manifest and the bills of lading, does not the agent know what the amount of duties will be?—No; he always relies upon the account he receives from the Stade custom-house.

1279. Is that because he knows that they are so accurately computed that they will not be likely to make a mistake?—If he did not have their account, he would have to calculate it himself, which is not the practice.

1280. Why so; he knows that certain articles are liable to pay so much money before-hand, as well as after he gets the amount?—Yes; but he would not attempt to calculate it; he would wait till he gets the account from the custom-house.

1281. What is the next inconvenience that you find to your vessels from these dues?—As regards the collection, the account is rendered to the broker in  
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Prussian dollars, and he has to convert it into marks-banco for the purpose of collection, and that in a large cargo will occupy a clerk a whole day.

1282. *Mr. Fitzgerald.*] Does not he have to do the same thing with the freight?—No.

1283. If you apply to a Hamburgh merchant for so many pounds, shillings and pence for the freight, do not you deliver your account in pounds, shillings, and pence?—No; in marks-banco.

1284. You have, then, to make the same calculation in turning pounds, shillings, and pence into marks-banco in the case of freight, as you have with the Stade dues?—Precisely; but the one is more simple than the other. There are three denominations in the thaler; the account rendered from the Stade custom-house for dues being in thalers, G. groschen and pence.

1285. *Chairman.*] What may be the average freight of one of your vessels in each voyage in goods?—Of course, it varies very materially.

1286. But take the average?—It varies with reference to times and competition; but I have got an account of four voyages which we made in March and April last.

1287. Are they fair samples?—They are very fair samples; I selected them as being so, and I have also the Stade account for the same voyages.

1288. What is the amount of the freight for those voyages?—The four voyages amount in the whole to 935 *l.* 4 *s.* 6 *d.* for the freight.

1289. That is something less than 250 *l.* each voyage?—Yes.

1290. Then the inconvenience upon that is that there is one day's work for a clerk to count up the Stade dues?—Yes; to convert them from the coin in which they are rendered.

1291. What is the value of a clerk's day's work in Hamburgh?—I should think that an efficient clerk for that purpose in Hamburgh would be paid at the rate of 120 *l.* a year, not less.

1292. What would that be per day?—Under 10 *s.* a day.

1293. Then that would be something less than a charge of 10 *s.* upon something less than 250 *l.*?—Yes.

1294. With regard to the freights and the incidence of the dues upon those four cargoes which you have got here, will you state what those were?—The Stade dues amounted to 215 *l.* 8 *s.* 11 *d.*; the per centage is on the average exactly 23½ per cent. upon the freight amount, and that I think is a very fair average at the present time; it varies of course with the description of goods, and with the rates of freight.

1295. Is the freight high or low now?—The freight is very low at present; the rates of freight I speak of.

1296. Have you given us the freight?—I make it that the gross amount is under 250 *l.* a voyage.

1297. Can you tell us what proportion of per centage that bears upon the value of the articles?—I have not prepared myself with that: but I have taken out the amounts per ton. Our rates of freight are generally by the ton weight.

1298. That is merely with reference to the freight?—Yes; I have taken the Stade dues, and cast it out into tonnage.

1299. That will throw no light upon its bearing upon the value of the articles?—No, not as per centage. It could be of course ascertained; but as we charge freight by the ton, I can tell you the amount of duty by the ton.

1300. *Mr. Villiers.*] You are not alluding to passage money; it is only the freight upon the cargo?—That is all.

1301. *Mr. Fitzgerald.*] Do you calculate the freight of goods that are comparatively light, and of great value, by the ton?—No, not always; sometimes by measurement.

1302. A package of Spitalfield's silks, for instance?—That would be by measurement.

1303. *Mr. Fenwick.*] Do not measurement and tonnage mean the same thing?—No; a ton weight is, of course, 20 cwt., the tonnage by cube is 40 feet, the tonnage measurement is by cubic feet. But of course, according to the description of goods, their weight will vary materially.

1304. Then the general calculation of freight is so much per ton, does not that mean measurement ton?—No, in general the quotation of freight is per ton weight; in some rates it is quoted at per ton measurement.

1305. *Mr. Fitzgerald.*] If that is so, any calculation as to the proportion that the Stade dues bear to the freight per ton would necessarily be very fallacious,

would it not, if goods of considerable value are charged by measurement, and not by weight?—Yes; I do not attempt to give the per centage of the Stade dues upon the value of the goods; I cannot attempt that, I am not prepared to do so.

1306. *Chairman.*] Can you tell us what the average charge per freight per ton on measurement goods has been, during the time of which you have been speaking?—It varies; 6*d.* a foot has been the usual rate until within a short period, when we have had great competition.

1307. At the time to which that paper refers which you have in your hand, from which you have deduced that 23 per cent. as the proportion of duty to freight, can you tell us what the rate of measurement per ton was during that time?—No, I cannot tell the measurement ton; I can tell you the proportion of duty per ton, and the rate of the freight per ton; the ton weight I speak of.

1308. Not the measurement ton?—Not the measurement; our principal articles are of a very heavy description, which are paid by the ton weight.

1309. What was the rate per ton during the months, with respect to which you calculated that 23 per cent.?—They are varying from 25*s.* downwards to 6*s.*, and even 4*s.*

1310. What is the article which pays 25*s.*?—Elephants' teeth will pay 25*s.*

1311. What is the article which pays 6*s.*?—Sugar would pay 6*s.*

1312. *Mr. Fitzgerald.*] Then even as regards goods which are charged by the ton weight, any comparison of the proportion of the charge for the Stade dues to the charge for the freight would be very fallacious, inasmuch as certain goods pay four times as much as others?—Yes; that may be.

1313. Now take the article which you mentioned, elephants' teeth, which pays 25*s.* per ton?—Yes.

1314. What is the proportion of Stade dues upon that?—The Stade dues will be 12*s.* 6*d.* per ton.

1315. Fifty per cent.?—Fifty per cent.

1316. Take an article where the charge is lighter?—Copper is a fair article.

1317. Take sugar with a freight of 6*s.*, would you say that that was one of the lowest?—It is as low as 4*s.*, and the duty is 2*s.* 1*d.* per ton; that is more than 50 per cent. upon our freight, but the freight varies constantly; that is the lowest freight, perhaps, that we ever carried; it arises from the competition.

1318. *Chairman.*] Four shillings is an extremely low freight?—It is an extremely low freight, and it is the result of extreme competition which in a great measure arises from this very subject, the Stade dues.

1319. Why have the Stade dues given rise to that competition?—They have given rise to an increased tonnage, sailing under the Hamburg flag.

1320. Do you know to what extent that goes?—At present there are six vessels sailing under the Hamburg flag in competition with us.

1321. Six steam-vessels?—Six steam-vessels.

1322. *Mr. Fenwick.*] And which pay no Stade dues at all; is that so?—They pay no dues if the merchant can declare that they are Hamburg goods being in Hamburg vessels.

1323. *Mr. Villiers.*] The fact is, that those six steamers now come into competition with you, not paying Stade dues?—The goods in a Hamburg ship are only exempt from Stade dues if they are consigned and belong to a Hamburg citizen; it may not be that the whole cargo is exempted.

1324. We know what the ground of the exemption is, namely, that unless the goods are owned by a Hamburg citizen, and shipped in a Hamburg vessel, they do not pay Stade duty?—The ship must be a Hamburg ship, and the goods must belong to a Hamburg citizen.

1325. Do those ships which compete with you now, answer those conditions?—They do, and as a proof of it, here is a handbill issued by a broker in London for one of the line of steamers of which I spoke.

1326. Do those six vessels belong to different people?—Yes, there are three belonging to one company, and three to another.

1327. And the whole of the owners are citizens of Hamburg?—The whole of them. The broker for the one company heads his advertisement, or his handbill, "Regular line of steamers under the Hamburg flag, Stade dues free."

1328. *Mr. Fitzgerald.*] That exemption only applies where the goods are *bonâ fide* the property of Hamburg merchants?—True; but there is an invitation to shippers; the shipper knows whether the goods will be exempt or not.

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1329. Have you any reason to suppose that there is any fraud carried on with reference to that, that goods that are ostensibly consigned, as being *bond fide* the property of Hamburg merchants, are in reality the property of British merchants?—No, there is no reason to suppose that; but that could not be practised by the broker in London, because the exemption is only in the case of the importer declaring as to the facts; therefore if there is any illegality at all it must be on the other side.

1330. Therefore the only competition to which you are exposed, is in the case of goods which are *bond fide* the property of Hamburg citizens?—Yes.

1331. Mr. Villiers.] This competition of Hamburg steamers is new, is it not?—No, it is not new; one line of steamers has been in operation for about 14 or 15 years.

1332. Always claiming exemption from Stade dues?—Always.

1333. How many do you say there were?—There are now six, but 14 or 15 years ago it was confined to two, and they were two small class vessels.

1334. When did they increase to six?—About three years ago.

1335. Did you suffer by competition from these two vessels?—Yes; but in a less degree of course than at the present time.

1336. How comes it, if it is such an advantage not to pay Stade dues, that the competition was not more active or operative before?—Because the Hamburg shipowners did not see the great advantage I suppose, or that they were not in a position to embark in steamers.

1337. Mr. FitzGerald.] Can you state at all what proportion of the trade between this country and Hamburg is in the hands of Hamburg citizens; that is to say, what proportion of goods are imported as *bond fide* the property of Hamburg citizens?—No, I am not aware.

1338. Mr. Villiers.] Do you know what the form of declaration is that a Hamburg vessel makes of being exempt; is there any inquiry made at the port into the validity of the claim?—I believe that a Hamburg vessel is obliged to go through the same form of putting in the manifest at Stade, as a vessel of any other nation; it is an exemption which is claimed by the merchant on the arrival of the ship.

1339. Must she fully set forth her description, with the nature of the goods on board, and that they belong to a Hamburg citizen, specifying the name?—Not that I am aware of.

1340. You cannot tell anything about that?—No, I cannot say. I can state that the exemption has to be claimed; I believe that it is not alone dependent upon the particulars which are contained in the manifest, but I believe that the merchant is obliged to declare that they are his property.

1341. But are there any facilities that you are aware of offered for evasion in any way?—No.

1342. It would not be the interest of the officer at Hamburg to permit any fraud of that kind?—Do you mean the Stade custom-house officers?

1343. The Stade custom-house officers?—No.

1344. They would look just as sharply after a Hamburg ship as after any other?—Yes, I imagine they would.

1345. They would require conclusive proof that the ship was entitled to the exemption on the cargo?—They would look strictly to that, no doubt.

1346. Mr. FitzGerald.] Have they got to go through the same form of delivering the manifest and bill of lading that you have got to go through?—I believe they have.

1347. And they have besides to show that the goods imported are *bond fide* the property of Hamburg citizens, in order to claim the exemption?—That is imposed upon the merchant, the importer; it is he who claims the exemption.

1348. When are the Stade dues paid in the first instance, and paid back again to him?—No; the exemption is claimed, I believe, before payment.

1349. Then, in respect of goods so privileged, they have a good many more forms to go through than in the case of the goods which pass through your hands which are carried by your ships?—In the case of claim for exemption, that is the only additional form which they have.

1350. But they have that?—I believe that is the practice.

1351. Mr. Fenwick.] Would you like to get that exemption? Would you think it worth your while to get that exemption from Stade dues by making a claim for them?—Certainly.

1352. You



1352. You would be glad to claim them as a merchant?—Certainly.

1353. Mr. Villiers.] How long have you been connected with this Steam Navigation Company?—Twenty-one years.

1354. Is it recently that you have felt the inconvenience of these Stade dues, or have you felt it during all the time your company has been established?—Twenty-one years ago it was scarcely felt by us, because we were alone upon the station then; we established the station; we opened the station with our steamers, and there was no competition then; at that time the Stade dues were an inconsiderable question with ships by steam; merchants paid a very high rate of freight at that time to take advantage of the steamers for their goods.

1355. Chairman.] What was the rate of freight then as compared with now, on sugar and coffee, for instance?—Sugar, I should think, would be at that time 20 s., where now it is 4 s.

1356. And coffee?—Coffee would be the same, or perhaps more; 30 s. or 40 s.

1357. They were good times then?—Yes, but then the vessels were comparatively small; they did not carry so much.

1358. You having six vessels, and the Hamburg merchants having six vessels, do you fill most, or do they fill most?—We have a fair proportion; but then we come to the point of the Stade dues.

1359. I am not asking about the Stade dues; I ask a simple fact. You say that you have six vessels and that they have six vessels upon the ground; you say that you get a fair proportion of the work?—Yes, notwithstanding that the Stade dues operate so materially against us.

1360. Mr. Fenwick.] Let us take the case of a cargo of coffee, upon which, I understand, the freight is 4 s. per ton?—That is on sugar.

1361. Out of that you pay 2 s. 1 d. Stade dues?—The merchant does.

1362. Over and above, and in addition to that?—The merchant will have to pay 2 s. 1 d. per ton for Stade dues.

1363. Amounting altogether to 6 s. 1 d. which the merchant has to pay for that weight?—Yes.

1364. What has the Hamburg merchant to pay if he carries that sugar under the Hamburg flag?—Of course, if he pays the same rate of freight, 4 s., he is a gainer of 2 s. per ton.

1365. Chairman.] Do you know it to be the fact that he pays the same rate of freight?—I know it as a fact.

1366. Do the Hamburg boats or not run at the same rate of freight as yours?—We are in such competition at the present time that we would carry at nominal rates. You may almost call 4 s. a ton a nominal rate; it is produced by that competition.

1367. Do they carry at the same terms?—They carry at the same terms.

1368. Mr. Fenwick.] Is that, in point of fact, a differential duty in favour of the Hamburg flag over our flag of 2 s. 1 d. per ton upon the article of sugar?—Precisely.

1369. Does the same remark apply to the articles of coffee and elephants' teeth?—Exactly.

1370. I think I understood you to state, that on the average freight 23½ per cent. is the Stade due which is paid?—That is the actual fact upon four cargoes, the particulars of which are here stated; the original account, of course, of the amount of freight is taken from our own books, and the amount of dues paid I received from our Hamburg agent.

1371. So that, in point of fact, at any time during the competition which has arisen, and which you seem to think will progress, the Hamburg companies can carry goods, on an average, at 23½ per cent. less than you can do?—Yes; and placing the merchant still in the same position.

1372. If they are Hamburg citizens?—Yes.

1373. Mr. Villiers.] I think we understand you, that only three out of the six vessels come under the exemption?—The whole six now come under the exemption. This is the announcement of the other company: "New steamers under the Hamburg flag;" that is the announcement. Of course, the merchant perfectly understands what that means, "under the Hamburg flag."

1374. Do you mean that the Hamburg vessels carry more coals than you do?—They do not carry coals at all as cargo.

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1375. This

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1375. This is probably a competition more for passengers than anything else?—Passengers and cargo.

1376. *Chairman.*] Can you tell us what proportion the passengers bear in the freight to the cargo?—The cargoes vary so materially that I do not think I can give you a guide in that respect; but as regards the outward voyages, to which the Stade dues are only applicable, last year, where we made 20,000*l* freight, we made 6,000*l*. passage money.

1377. That is something like one-third of the whole; not quite?—Not quite one-third.

1378. *Mr. Fenwick.*] There are no Stade dues now paid upon passengers?—No; there is upon the baggage of passengers; or, at least, there used to be.

1379. So that, in point of fact, the Stade dues operate as a differential duty against you upon goods, but have no operation whatever on passengers?—Just so.

1380. *Chairmen.*] Do you carry more or less passengers than the Hamburg boats?—We carry more; our vessels are paddle-wheel vessels, and they have still the preference.

1381. *Mr. Villiers.*] What is the proportion of cargo imported into Hamburg that arrives there by sailing-vessels, and what by steam?—I cannot tell you; but with the exception of some very low description of goods, the trade is entirely carried on by steamers. For instance, in the case of guano, perhaps, small vessels may be chartered to carry guano, and articles of that description.

1382. And coals?—Not from London.

1383. Coals do not go from London to Hamburg?—No.

1384. The coals which go to Hamburg go from the North of England in sailing-vessels?—Yes.

1385. *Mr. FitzGerald.*] I understand you that the result of the Stade dues has been to make a greater competition between Hamburg boats and London boats than would otherwise exist?—That I have shown has been produced.

1386. Then it is that which has lowered your charge from 20 *s.* a ton to 4 *s.* a ton?—The competition has done that.

1387. But you say the competition has arisen from the Stade dues, and the result of the competition is, that you have lowered the freight from 20 *s.* to 4 *s.*?—Yes.

1388. Then, so far as the British merchant is concerned, it has been beneficial to him, because it has reduced the rate of freight from 20 *s.* a ton to 4 *s.* a ton?—Precisely.

1389. *Chairman.*] The general competition has knocked down your freight to that low figure?—Yes; any competition will result in that, but the competition in respect of these Stade dues is, as I have said, a most unfair one.

1390. *Mr. Bowyer.*] Supposing the Stade dues were abolished, should you raise your rates of freight?—That would depend upon the cessation of the competition, or otherwise.

1391. I do not ask why it would be so, but I ask, would the effect of the abolition of the Stade dues be, that you would raise your rate of freight?—That would not depend upon the question of Stade dues, it would depend upon the competition that we should be subject to.

1392. Would, in your opinion, the abolition of the Stade dues put an end to the competition?—That will have to be decided.

1393. You give no opinion on that?—My opinion is, that the vessels will cease to run when the Stade dues are abolished, that they will not be able to maintain themselves upon the station.

1394. What vessels do you mean would cease to run?—The competing vessels, the Hamburg vessels.

1395. The Hamburg vessels, you say, would cease to run, and then that competition would cease?—It might; it is difficult to say.

1396. If the vessels cease to run, the competition must cease?—There are two companies that must leave the station before we should be enabled to regulate the freights.

1397. You mean that there would still be a competition between the two companies?—The two companies must either retire, or an arrangement must be made between the companies before a rise in the price can occur.

1398. I want to know whether the effect of the abolition of the Stade dues would be to put an end to competition?—No, not immediately.

1399. Not

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1399. Not immediately; but it would ultimately put an end to the competition?—That would depend upon the strength or means of the competing parties.

1400. You mean that the weakest party would go to the wall?—If the competition continues, unless an arrangement were made.

1401. If the weakest of the parties went to the wall, so far the competition would be at an end?—That competition would.

1402. Then that competition being at an end, would the rate of freight be raised?—Above the present very low rates most certainly; they are unreasonably low rates of freight which are now consequent upon this extreme competition.

1403. *Mr. Fenwick.*] And unremunerative?—Unremunerative for certain articles.

1404. *Mr. Bowyer.*] You say that the rates of freight are unreasonably low; but probably the merchants think that a low rate is beneficial to them?—They know that the present very low rates are in consequence of competition.

1405. And they derive the benefit of that from the competition?—Yes, of course.

1406. You spoke of an arrangement just now; what do you mean by an arrangement?—An arrangement between the parties engaged upon the station as regards rates of freight.

1407. You mean an arrangement between the companies for the purpose of keeping up the freight?—Yes.

1408. Then that arrangement between the parties, the effect of which would be to keep up the rates, would not be beneficial to the public?—Upon the principle that competition is always good, and leading to extremely low rates, you may say so; but the public do not object to reasonable rates.

1409. *Mr. Fenwick.*] Am I to understand you that you object to competition entirely, or that you object to an unreasonable competition, arising from a differential duty in favour of your competitors?—That is what we complain of.

1410. *Mr. FitzGerald.*] You say that the only competition that exists is a competition arising out of the existence of the Stade dues?—No; the competition is a competition of itself, but the Stade dues create an unfair competition.

1411. Will you be good enough to answer the question I put. I ask you this: the only competition that exists is one that arises out of the existence of the Stade dues?—No; the competition is the natural competition of two steamboats running to the same place.

1412. Are there any other steamboats competing with you except the Hamburg steamboats, which are not liable to Stade dues?—None others.

1413. Then the only competition that at the present moment exists, is a competition arising from the advantage which those Hamburg ships have got over you in respect of their freedom from Stade dues?—In a great measure.

1414. Is there any other competition at the present moment?—Why, that is competition enough.

1415. Is there any other competition at the present minute, except the competition with the steamboats owned by Hamburg citizens, which competition you say arises from the fact that they are free from the Stade dues while you pay them?—There is, first, the natural competition of two vessels trading to the same place.

1416. I do not ask you about natural competition, I ask you, is there any other competition than the competition with the Hamburg steamboats?—There are no other English steamboats upon the station than ours.

1417. Is there any other competition at the present moment?—I cannot answer the question; I do not understand it.

1418. The question is a simple one?—I say the competition is the natural one of two vessels trading to the same place.

1419. *Chairman.*] Are there any other vessels running in competition with your vessels except the six Hamburg vessels of which you have told us?—None; I have answered that question twice distinctly. I have said that there are no other vessels but our own trading to Hamburg, with that exception.

1420. *Mr. FitzGerald.*] Are there any Stade dues payable upon the homeward freight?—None.

1421. Can you tell me whether the Hamburg vessels are able to compete with you for the freight from Hamburg to England?—We get a great preference; an overwhelming preference.

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1422. You charge a certain amount of freight upon articles from London to Hamburg?—Yes.

1423. Do you charge the same amount of freight upon the same articles from Hamburg to London?—There are very few articles that are carried both ways; so few that I cannot say.

1424. Are there any articles?—No; I cannot call to mind that there are any articles both ways, except return goods.

1425. Do you never import sugar from Hamburg to London?—No, except return sugar.

1426. Do you charge the same amount of freight for return sugar from Hamburg to London as you charge from London to Hamburg; do you charge 4 s. a ton?—Not as a matter of course; our carrying rates are quite distinct from Hamburg to London and from London to Hamburg. We should not consider that the merchant would have a right to claim the same freight upon the same description of goods carried one way as carried the other.

1427. *Chairman.*] Do you bring cattle?—We bring cattle.

1428. Do the Hamburg boats bring cattle?—A few, but very few.

1429. Do they charge the same rate for cattle that you do?—The same.

1430. *Mr. FitzGerald.*] Whether you carry the same goods both ways or not, have you a tariff of your charges from London to Hamburg, and a tariff of your charges from Hamburg to London?—Not a published Table.

1431. Have you one that you can produce to the Committee?—No, I have not. At this time I must explain, that we are hardly guided by a tariff; the competition is so strong that our freights may vary day after day.

1432. To put the matter shortly, can you represent to the Committee that your charges are the same in practice from Hamburg to London, as they are from London to Hamburg?—They are equally low in comparison with the articles.

1433. I did not ask you that. I asked whether they were the same?—I have explained that we carry but few, if any, of the same goods both ways.

1434. Surely my question is a very simple one. Is your charge practically the same?—As a matter of course not.

1435. Is it practically the same; I do not ask you a principle or a theory?—Both ways they are extremely low.

1436. Are they practically the same; that is a simple question; do you in practice charge the same both ways?—Our tariff of rates is not binding both ways.

1437. *Chairman.*] Is it the same both ways; from London to Hamburg and from Hamburg to London?—I say it is not a matter of course; there are distinct tariffs of freight which guide the London broker and the Hamburg broker. The one tariff is not general to both voyages.

1438. From what you say the case is this, that the competition is so sharp that you make special bargains from day to day?—That is the fact; but when the competition was not so active, the rates of freight from London to Hamburg were never a guide for the rates of freight from Hamburg to London.

1439. The articles being different?—The articles being different, and circumstances different.

1440. *Mr. Bowyer.*] You say the rate of freight is very low; I want to know whether that rate of freight, though low, is remunerative?—I really cannot answer that, because what may or may not be remunerative is a matter of opinion. I can tell you at once, that if our ship was loaded with goods at 4 s. a ton, that would not be remunerative.

1441. *Mr. FitzGerald.*] Do you import low class woollen goods from Germany into London at all?—I think not.

1442. Or low class cotton goods?—No, I think not. I do not think they form any material portion of our cargoes; they are very general cargoes.

1443. But do you bring them at all?—We may bring them occasionally; but I am not so intimately acquainted with the details of the manifest as to speak to that.

1444. Can you tell me at all what the charge for freight would be upon those low class German goods?—They would pay by measurement about 3d. per cubic foot.

1445. Is that the same that woollen goods would pay from England to Hamburg?

Hamburg?—Yes; measurement goods pay about the same, 3*d.* a foot, at the present time.

1446. In respect of those articles, they are charged in both cases about the same?—Yes; I should think about 3*d.* a foot is the rate of freight upon those goods.

1447. Mr. Fenwick.] I understand you to say that the present rates of freight between London and Hamburg are very low?—Very low.

1448. And that they are very low in consequence of the competition with the Hamburg boats?—Yes.

1449. I need not ask you if you would like to have those rates raised?—No doubt of it.

1450. And you would take higher if you could get them?—No doubt.

1451. Suppose they were raised to more than a fair rate, to a very large and very remunerative one, and that the Hamburg vessels had already ceased to run in consequence of the Stade tolls being got rid of, do you think that when the freights between London and Hamburg became very high, that would not bring forth a competition from other persons who might embark in the trade of steamers?—No doubt.

1452. That competition you would not object to?—Not at all.

1453. But you do object to a competition with vessels which pay less dues than your own vessels do?—Decidedly.

1454. Do you know the Great Northern and the London and Birmingham Railway Companies?—Yes.

1455. You are aware that they have the same termini in different parts of England?—Yes.

1456. And that they are only competitive to that extent?—Yes.

1457. You are aware that there are certain Government duties paid by railway companies on passengers?—Yes.

1458. Do you think that if a law was passed by which the Government duty was taken off one of these railway companies, but kept upon the other, that would be a fair and proper thing?—Certainly not.

1459. Do you think that the one upon whom the tax was still levied would have reason to complain of the exemption of the other?—Undoubtedly.

1460. Would you think that that in itself was an unfair and unjust competition?—Quite so, of course.

1461. Do you consider that that is a fair illustration of the case of your competition with the steamers at Hamburg?—Yes; as regards the unfair competition certainly.

1462. I think I understand you to say that you have a great preference given to you for homeward cargoes?—A preponderating preference.

1463. Will you tell us what is the reason of that preference being given to you?—It is our connexions, I imagine, and our class of vessels, and the regularity of our departures.

1464. In other words, the greater accommodation which you afford?—Yes.

1465. And the better accommodation that you afford?—Yes.

1466. Mr. Villiers.] Do you infer that, as there is a greater preference shown to your vessels in the homeward cargoes, if you were left to fair competition with the Hamburg vessels, they would be beaten?—We should obtain a large portion of the cargoes that at present we see pass us to go under the Hamburg flag.

1467. Then you believe that there would be no longer that competition which exists now, if the Stade dues were removed?—It is a mere matter of opinion; perhaps the other side would not agree with me, but I think they would be obliged to retire; I think our connexions and other advantages would oblige them to retire from the station.

1468. Will you tell us precisely in what year it was that the Hamburg citizens became alive to their advantage in this exemption, and started those vessels?—The first vessels sailing under the Hamburg flag were established, I believe, about 15 years ago.

1469. That we understand, but you never cared for that competition; I think four of those six vessels have been established much more recently?—Yes, I think about three years ago.

1470. Do you know anything about the circumstances of this company; how

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it came to be established?—No, except, I suppose, that they thought it was a good field for the employment of their capital, and no doubt were encouraged to embark upon that from the advantage which the Stade dues gave them over any English competitors; no doubt that originated them.

1471. They never had the chance before, I think; that is to say, you always had a sort of monopoly in the carrying trade to Hamburg?—At the first opening of the station we certainly had, and enjoyed that monopoly many years.

1472. Much longer than 14 years ago?—Yes.

1473. Up to about two or three years ago you had that monopoly?—No, inasmuch that fourteen or fifteen years ago two vessels were introduced to the station under the Hamburg flag.

1474. Were they large vessels?—No, they were vessels of a small class.

1475. Your freights were higher then?—Our freights were higher then.

1476. Do you know of anything that affects the trade between this country and the north of Europe which gives an advantage to those vessels in the trade of this country?—We are not engaged in the trade of the north of Europe, except to Hamburg.

1477. Are they not able to navigate their vessels cheaper than they could before?—Yes; they pay less wages, and they have provisions and materials cheaper.

1478. As to building materials, do not they build ships cheaper now than they did formerly?—Yes; but most of the vessels that are engaged against us have been built in England.

1479. Are you quite certain that it is not English capital that is employed in the Hamburg Company in competition with you?—No; I believe they are entirely Hamburg property.

1480. Has there been any company ever started against the General Steam Navigation Company with a view to trade to the north of Europe?—Yes; an English company.

1481. Was it called the North of Europe Company?—The North of Europe Company was one; that was the most recent; and previously, there was the St. George's Company; that was many years ago.

1482. Both have failed?—Yes; in a commercial point of view, they have failed.

1483. And you are now afraid of the success of the Hamburg Company?—No; I am not.

1484. Is not there a company getting up at Hull to run from Hull to Hamburg?—I am not aware of any new company.

1485. *Mr. Blackburn.*] Do you know of a company from Leith to Hamburg?—Yes.

1486. There is a company from Leith to Hamburg?—Yes.

1487. *Mr. FitzGerald.*] In the early part of your evidence, you spoke of two things as being impediments in the way of your trade, as I understood you; the one was, that you ran a risk if the contents of the packages should not correspond with the manifest and the bill of lading?—Yes; we should be held responsible for that.

1488. Do you deliver the goods before the Stade account is delivered?—Yes.

1489. Then the risk you mean that you run is, that you would have to pay in the first instance, and that it would not necessarily follow that you should get that back from the consignees?—That has occurred.

1490. What other ports do you trade to besides Hamburg?—On the Continent we go to Hamburg, to Ostend, to Antwerp, to Rotterdam, to Calais, to Boulogne, and to Havre.

1491. What credit do you generally give for the payments of the freights in those ports?—By an arrangement with our agents, we make them responsible for the amount, payable upon the succeeding voyage; that is not more than a week or ten days; but if they incur any loss it eventually comes upon us, although by arrangement they remit us the freight.

1492. Are your arrangements of a similar kind at Hamburg?—Yes.

1493. Then when you spoke of the delay in the receipt of the freight, which was caused by your having to wait for the delivery of the Stade dues note, were you representing to the Committee that the delay was greater at Hamburg than it is at Antwerp and Rotterdam, with reference to the receipt of the freight?—

Yes,

Yes, decidedly ; there is no impediment to the immediate collection of the freight at any other place that we trade to.

1494. That is, that you give your agent at Hamburg a larger credit, in fact, than you do at any other place ?—No.

1495. Then you receive your freight as soon at Hamburg as you do at Antwerp ?—From the agent ; that is the arrangement with him ; but any bad debts which he incurs fall upon us subsequently.

1496. That would be the same in any other port ?—Yes.

1497. Then the impediment in the way of the trade is, that the agent has to wait longer for the freight at Hamburg than he has at any other port ?—Yes, but the risk, and all the consequences of any loss, would fall upon the company eventually.

1498. Not more at Hamburg than at any other place ?—But at Hamburg there is a special risk attending that delay in the recovery of the freight.

1499. Can you say, as a matter of fact, that your agent at Antwerp or Rotterdam gets payment of the freight from the merchant quicker than he does at Hamburg ?—More promptly, decidedly.

1500. That you can state as a matter of fact ?—Yes ; the freight is due immediately upon the delivery of the goods ; indeed we can claim it before we part with the goods.

1501. *Mr. Villiers.*] You get it a month afterwards ?—Perhaps in about a month ; I think that is the practice.

1502. You get the paper from the Stade officer in 10 days ?—Yes.

1503. Therefore the Stade dues do not cause the slightest delay in your getting the whole together ?—No.

1504. *Chairman.*] I think you stated that the inconvenience was that the agent who collects the freight would not begin to collect it at Hamburg until he got the Stade note, that is, 10 days ?—Exactly.

1505. *Mr. Villiers.*] Why not ?—Because he collects the dues and the freight both together ; the freight and the dues are all recovered from the same parties.

1506. The merchant pays the Stade dues, does he ?—Yes, with the freight.

1507. Is there any declaration by the passengers of their luggage, or anything that they have with them ?—Formerly they used to charge upon every package carried by the passengers, but they are not so rigid in their regulations now.

1508. Is there any declaration whatever made of what the passengers have with them ?—No ; the captain has to make a return of the number of packages comprising each passenger's baggage.

1509. But there is nothing to say as to the contents. A man might have a great box of jewellery, or things very valuable, but there is not any duty payable upon them ?—I am not certain about that.

1510. Do you know anything about Hamburg yourself ?—I have been there.

1511. Do you know that the Government of Hamburg are just as much against the Stade dues as you are ?—I am aware of that.

1512. That the Government of Hamburg do not attach any importance to its citizens having this privilege, from any advantage they are likely to derive from competition on account of being exempted ?—No ; I should think they were concerned in the abolition of the dues ;—no doubt of it.

1513. *Chairman.*] Do you know anything of the Port of Harburg ?—I know it only as it affects our traffic.

1514. Do you know anything of the trade that is carried on there ?—Do you mean the particular nature of the trade ?

1515. As to whether it has increased or decreased within the last few years ?—It has increased very materially.

1516. Do you recollect when it was made free of the Stade dues ?—In 1850.

1517. Is it since that this new competition has sprung up with the Hamburg vessels ?—It is a new competition with our Hamburg trade, decidedly.

1518. It is since Harburg has been rendered free of the Stade dues that the Hamburg merchants have thought fit to set up more steam vessels with a view of keeping the trade of Hamburg ?—It is so ; the one occurred in 1850, and the other since that period.

1519. *Mr. Villiers.*] Have you any boat that goes to Harburg ?—No.

1520. *Chairman.*] You say the trade there has very much increased ?—Yes.

1521. Where do the vessels that go to Harburg go from ?—There is a line from London to Harburg.

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1522. Steamers?—Yes.

1523. Do they run in competition with you at all?—Decidedly; it is an indirect competition.

1524. *Mr. Villiers.*] It is another class of vessels, is it?—Yes, it is an indirect competition with our Hamburg station.

1525. *Chairman.*] They carry goods there that would otherwise go to Hamburg; that is so, is it not?—Yes, in large quantities.

1526. Do you know, at all, in what proportion the trade has increased lately?—No; I believe there have been published accounts, but I have not one with me.

1527. Published in what?—There were some returns in a pamphlet, but I have not got it with me; but it shows a very large increase of shipping to Harburg since the abolition of the Stade Dues.

1528. You allude to a pamphlet published lately on this subject?—Yes.

1529. Do you believe that to be correct?—Yes; I have never heard it contradicted.

1530. *Mr. Villiers.*] Is it any injury to us that there should be a place where we can send goods free from Stade Dues?—No.

1531. It is rather an advantage?—Yes.

1532. *Chairman.*] If you chose to run your boats to Harburg, they would pay no Stade Dues?—No.

1533. *Mr. Villiers.*] Has it made the Stade Dues rather more arbitrary in their character, that the Hanoverian Government have exempted this particular port of Harburg, whilst the Hamburg citizens are already exempt?—Yes; the Stade Dues are a pressure to encourage a Hanoverian port.

1534. *Chairman.*] I suppose the opening of this port at Harburg has made the Hamburg people feel that their exemption is not quite so valuable as it was before?—Quite so.

1535. That may have stimulated them to make a good deal of noise about the dues?—No doubt of it.

1536. They are pretty much interested in getting rid of them, are they not?—Of course they are.

1537. They have a larger interest in proportion than the English interest?—I should say so.

1538. *Mr. Villiers.*] Do you know whether the General Steam Navigation Company have ever thought of redeeming the Stade Dues themselves, paying Hanover a sum of money to redeem them?—No; they have never considered the question.

1539. Would they be ready to do that, do you think?—I think not.

1540. *Chairman.*] Do I understand you to say that you think Hamburg has a greater interest in getting rid of the Stade Dues than this country has?—I do not think I can answer that satisfactorily; I have not any data to go by.

1541. Have you any doubt that their interest in getting rid of them is considerable?—Undoubtedly; the amount on cargoes that the English vessels pay, I believe, is estimated at something like 20,000 *l.* a year. So far, Hamburg is interested in that question, but Hamburg interests are different in some instances; their business as forwarding agents is affected by it.

1542. When you say that English vessels pay that, you mean goods going in English vessels, the duty being paid by the consignees?—Yes, I only speak as a shipowner; the amount of Stade Dues paid on cargoes belonging to vessels of the General Steam Navigation Company in 1857 was 3,231 *l.*, and in 1856 4,376 *l.*

1543. I understand you to say that Hamburg has an indirect interest by way of agency and various matters of that sort in keeping the trade to Hamburg instead of letting it go to Harburg?—Yes.

1544. *Mr. Villiers.*] Do not you believe that as soon as ever the Stade Dues were taken off, looking at the superiority of your vessels, and the little chance that the Hamburg vessels have in competition with you, you would add them to the freight?—No, I do not think we should have the opportunity.

1545. You would drive the Hamburg steamers off the line, and then you would revert again to these high freights, or add the Stade Dues to them?—Add the Stade Dues to them, that may be; but that would be a very trifling addition to the freight.

1546. I thought it was very great?—Very great as compared with the present freight, where the freight has been 4*s.* a ton.

1547. *Quoad* the merchants it is pretty much the same to them, whether they pay



pay Stade Dues separately, or pay them to you in the shape of freight?—No doubt.

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1548. *Mr. Fitzgerald.*] Do you deliver the goods before the Stade Dues are paid at Hamburg?—Yes.

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1549. Is there anything to prevent your agent at Hamburg obtaining the freight as rapidly as he does at any other port?—In practice, his having to wait for the account of the Stade Dues prevents his sending in the freight note; practically it is so.

1550. That is to say, he would have to make two applications, instead of one?—Yes.

1551. *Chairman.*] Is there any other matter which you wish to bring before the Committee?—I wish to refer to the peculiar position in which an English vessel is placed to load for the port of Hamburg, a country by whom English vessels are professed to be treated as belonging to the most favoured nation, that it has to load in competition with a vessel under the Hamburg flag. On canvassing the merchant to ship his goods by our vessels, he meets us by stating, that there is an opportunity of shipping goods under the Hamburg flag, and so saving the Stade Dues. Now, those Stade Dues are levied by a country with whom our shipping is supposed to be upon the same footing as that of the most favoured nations; and notwithstanding there is an advantage to the Hamburg flag.

1552. *Mr. Fitzgerald.*] That advantage to the Hamburg flag is recognised by the very document which gives us the right enjoyed by the most favoured nation?—It is so by the treaty; but it is a matter certainly requiring correction.

1553. But there is nothing unfair, so far as the operation of the treaty is concerned, when the very instrument under which we have that privilege of being placed upon the same footing as the most favoured nations does, in connexion with that, recognise the right of the Hamburg flag?—No; but that does not lessen the anomaly; that does not alter the case.

1554. Nor does it argue the infliction of any special hardship upon you?—You will not find such a circumstance, I believe, in the case of any two ships under different flags, trading to any other part of the world, where the British vessel is subject to a disadvantage of that kind.

1555. *Mr. Villiers.*] Every other vessel is in the same position except Hamburg?—Yes; but that has produced the competition which we are labouring under now, and under which we have such great disadvantages.

1556. There is a great deal of tropical produce comes in foreign vessels direct to Hamburg, not brought in British vessels?—Yes.

1557. Which pay the Stade Dues?—Yes.

1558. Are there many American vessels that enter the port of Hamburg?—Not so many, I believe, as formerly; but I am not prepared with any returns.

1559. Are the General Steam Navigation Company increasing their vessels in number?—I think they are gradually increasing in number and in size.

1560. As regards the trade of Hamburg?—In the Hamburg trade they have increased very materially of late years. I have said that we have six vessels constantly employed; the aggregate tonnage of the whole is 4,000 tons, and we estimate them at from 90,000 *l.* to 100,000 *l.* Now, in the case of Harburg it would be immaterial in a great measure where we sent our vessels to, so long as we carried the trade; but we could not transfer this capital which we have at present engaged at Hamburg to Harburg, because the vessels are so ill adapted to the port, or rather the port is so ill adapted to receive the vessels. It seems that the port is subject to very shallow water, and in the winter time, during the prevalence of easterly winds, I believe they have only five feet of water. The vessels which have been built specially for the Harburg trade are obliged at times to unload a portion of their cargo off Altona, from their inability to reach the port, either a part or the whole of it, according to the circumstances.

1561. *Chairman.*] In spite of those difficulties, the trade increases?—It does.

1562. *Mr. Villiers.*] As to the destination of the goods to Harburg, it makes a difference in paying the duties, if they discharge a portion of their cargo at Altona?—Yes; but I may state that I have ascertained that they are still exempt from duty.

1563. *Chairman.*] Are there any railways open to Harburg that give facilities for the transport of goods?—There are great facilities at Harburg for sending goods to central Germany.



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1564. That, of course, to a certain degree, countervails the disadvantages of the port?—As regards the importers, not as regards the shipowner.

1565. *Mr. Villiers.*] I do not understand the reason which you gave for not employing any portion of your capital in trading to Harburg?—I spoke of our present capital engaged in trading to Hamburg. Of course, any natural competition we are not only subject to, but would willingly meet; but we could not transfer our present trade from Hamburg to Harburg, because the vessels which are employed in our trade to Hamburg are not eligible for the port of Harburg.

1566. *Chairman.*] When you use the word "capital," you mean vessels?—Yes; it is a very unfair mode of encouraging the port of Harburg, we consider, by making the Stade dues a handle for that purpose.

1567. *Mr. Fitzgerald.*] Would it be impossible for you to transfer those vessels to another station?—It would leave us so many vessels in excess of our present arrangements.

1568. Are you adding at all to the number of your vessels upon other stations?—Yes, but they are of a peculiar class; those to Hamburg are a very large class of vessels.

1569. Are they larger than those that run to Rotterdam?—I was going to say that we have lately increased our vessels to Rotterdam and Ostend, but we could not send those vessels employed in trading to Hamburg to those parts.

1570. Are they too large for the Antwerp trade?—Decidedly.

1571. Or for the Rotterdam trade?—Decidedly.

1572. Then, in fact, it would be difficult for you to transfer them?—It would.

1573. *Mr. Villiers.*] Is there anything further which you wish to convey to the Committee?—I should mention that in the case of errors in the manifest, or discrepancy, the Stade officers require the contents of the package to be declared; but sometimes the merchant finds in his bill of lading so many packages of merchandise without any description of their contents.

1574. *Chairman.*] But I think you told us that, practically, for the last two years you have had no instance of any trouble?—No; but those forms are still adhered to.

1575. But in practice you have had no trouble for the last two years in that respect?—Exactly. Formerly they would admit of no explanation, but of late years they have been less stringent; but even now, in entries that are made of packages of merchandise, the importer is required to state the actual contents of the packages within 21 days. He has to make a declaration on oath of the contents, otherwise a higher duty will be levied than that due upon the actual contents.

1576. But that being all well known among merchants now, I understand from you that within the last two years you have had no difficulty?—Practically it is so; but in one account returned to us from the Stade custom-house there are two instances where the goods have been returned on our part as merchandise. It is requisite that the merchant within 21 days shall make a declaration on oath as to the actual contents, otherwise he is charged the highest rate of duty in the tariff; and there are two instances in this one account where merchandise has been first filled in, and a high rate charged, but afterwards altered upon the declaration of the merchant.

1577. The real grievance is the payment of the money?—The real grievance is the payment of the money, and that is all required to be paid by the agent within 14 days after the account has been rendered.

1578. That all comes within the month. The 10 days before he gets the note, and the 14 days before payment, that is 24; that is all within the month within which the freight accounts are to be settled?—Yes. I mention one month as being about what has been the practice in Hamburg, as regards the settlement of freights.

1579. *Mr. Fitzgerald.*] Have you any floating insurance upon the cargoes?—No; we are not liable to the sea risk, nor do we insure our ships even.

1580. You are self-insurers?—We are.

1581. But as regards your cargo, the insurance is at the risk of the exporter?—Yes; we are not liable to sea risk, therefore we pay no regard to that.

1582. *Mr. Villiers.*] You do not submit any plan for getting rid of these Stade dues, do you?—No; I am not prepared to do that.

*Martis, 29<sup>o</sup> die Junii, 1858.*

## MEMBERS PRESENT.

Mr. Fenwick.  
Mr. Seymour Fitzgerald.  
Sir James Graham.

Mr. Grogan.  
Mr. Henley.  
Mr. Villiers.

THE RIGHT HON. JOSEPH WARNER HENLEY, IN THE CHAIR.

*Nicholas Wood, Esq., called in; and Examined.*

1583. *Mr. Fenwick.*] I BELIEVE you are President of the Mining Institution in this country?—I am President of the Institute of Mining Engineers.

*N. Wood, Esq.*

1584. Are you an extensive coalowner in this country as well as in Prussia?—I am, in Northumberland and Durham, to a very considerable extent, and also in Prussia.

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1585. Can you give us any idea of the quantity of coals that you work for yourself and partners?—I think upwards of two millions of tons last year.

1586. In addition to that, are you engaged as a mining engineer for lessors of coal?—I am for several lessors; for the Ecclesiastical Commissioners, for the Duke of Portland, for Lord Scarborough, and Lord Ravensworth, and other gentlemen.

1587. Have you any idea of what quantity of coals are sent out of those collieries belonging to the church of which you are the inspecting engineer?—I think last year the quantity worked was nearly three million and three quarters of tons belonging to the church, and of the others, I suppose about 500,000 tons.

1588. Then, in point of fact, you have as much experience and knowledge of coal mines as anybody in the world?—I think so. I have been now above 46 years connected with collieries. I am also a coal proprietor in Prussia.

1589. Will you give the Committee some idea of the place at which you have those coals in Prussia?—Perhaps I had better explain a plan which I have with me to the Committee (*exhibiting the same*). This is a plan of the district where the coal is situate in Prussia, which comes more immediately in competition with the British coal. (*The Witness explained the plan to the Committee.*)

1590. Having pointed out on the map the position of the coal-field, will you proceed to state the particular circumstances connected with it?—The coal-field in which I am a partner is in the valley of the Ruhr, abutting on the Rhine; the valley is about 30 miles long, and averaging probably about five miles in breadth; it comprises about 156 square miles of coal, extending from the neighbourhood of Ruhrort to Essen, and further east.

1591. Will you state the number of beds, or seams of coal, there are in that valley?—In the Essen district there are 39 beds of coal, altogether making 109 feet 8 inches of coal; 16 of those are under three feet thick, although they are workable; the 16 beds being 25 feet 6 inches, leaving 84 feet of coal in 23 seams above three feet thick.

1592. You call three feet thick a fair, workable coal?—Three feet thick is a very cheap-worked bed of coal; below three feet it is a little more expensive.

1593. Will you tell the Committee what is the general nature of the coal?—The quality of the coal is generally a manufacturing coal; it is excellent coal for manufacturing purposes, for steam-engines, and for making iron, being free from sulphur; it is a pretty fair gas coal, but not so good as the best English coal for gas; it is not a very good coking coal, being mixed partly with earthy matter, so that it does not make so good a coke as the best Durham coal; but for manufacturing and general purposes of making iron, it is as good as any of the Durham or Northumberland coal.

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1594. Mr.

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1594. *Mr. Fitzgerald.* Is there any ironstone in the district?—There are very extensive beds of ironstone up the Rhine, on both sides of it, and that ironstone is of a very superior quality.

1595. Whereabouts is that situate?—The great deposit is in the neighbourhood of Newried, below Coblenz, and about five miles from the Rhine; that is where the great deposit of ironstone is; but ironstone abounds in large quantities on both sides of the Rhine.

1596. On which bank?—On the right bank of the Rhine particularly.

1597. Nearer the sea than Coblenz?—It is on the right bank, and below Coblenz.

1598. Is it in the Prussian territory?—In the Prussian territory. I have now no connexion with any company; I was some time ago concerned with some very extensive ironstone mines in that neighbourhood, and the price at which the ironstone can be got down to the neighbourhood of Ruhrort is about 4*s.* 6*d.* a ton. The boats which take the coal up the Rhine, are loaded back with ironstone as a back freight; and there are now several iron furnaces erected in the valley of the Ruhr. The Belgian ironmasters cannot get coal in Belgium to supply the ironworks; and the Phoenix Company, which is a very large company in Belgium, have erected some furnaces near to Ruhrort, for the sake of getting the coal of that valley.

1599. *Mr. Fennick.* You consider that as a confirmation of your view that the coal is good for manufacturing purposes?—Yes; I am quite certain, from my experience and from what I have seen of that district, that the coal is excellent for making iron, and for manufacturing purposes.

1600. Will you state to the Committee your views as to the cheapness with which this coal in the valley of the Ruhr can be worked?—I have got the cost of working the Concordia Mine, which has been in operation for some years, and I think, from what I see of the coal generally, that it can be worked quite as cheap as any of the coal in the Durham district. In the upper part of the valley, near to Essen, it can be worked cheaper than it is in the lower part of the valley, where the Concordia Mine is situate; but I should say that the coal unscreened can be worked at about 3*s.* 6*d.* a ton.

1601. *Mr. Villiers.* Do you mean that that is the price at the pit's mouth?—No, not the price at the pit's mouth; I think that that would be the fair cost of working it, from 3*s.* to 3*s.* 6*d.* a ton.

1602. *Mr. Fennick.* Have you taken into your consideration in that calculation the outlay of capital?—The outlay of capital. At Essen the upper part of the district, where the tertiary formation is very thin and they have no water, the coal comes out close to the surface, and it is very cheaply worked. Lower down the valley there is a great quantity of water in the tertiary formation, and there they are obliged to use engine power to get the water out, or to use very extensive tubbing; there the cost is greater; I suppose, from about 4*s.* to 4*s.* 6*d.* a ton.

1603. *Chairman.* That includes the pumping?—The pumping.

1604. Or the tubbing?—The tubbing is a caisson in the pit to keep the water back.

1605. *Mr. Gregan.* Is the coal sold at the pit's mouth at those prices?—No; they sell it very high at present; I believe it is sold at about 8*s.* to 10*s.* a ton now; there is a great demand for it.

1606. *Mr. Villiers.* What becomes of it?—It is sent up the Rhine and also down, conveyed in boats, and then it is sent upon the railways to the east and south into Germany.

1607. Can you tell the Committee where it goes to, what is its ultimate destination; does any of it reach Magdeburg?—Yes.

1608. None goes up to Hamburg, I presume?—None, I believe, to Hamburg.

1609. But it does go to Magdeburg?—Yes, there is a line of railway (the great continental line towards Berlin), which crosses over the coal-field; by which it is taken to Minden and Hanover, and Magdeburg. Magdeburg, I think, may be taken as the centre of competition between the coal imported into Hamburg from England, and the coal taken from the Ruhr Valley.

1610. How does coal get from Hamburg to Magdeburg?—There is a railway from Hamburg to Magdeburg.

1611. And that is the point where the coals coming from those two separate parts would compete with each other?—That is the great point where they meet,

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meet, and where they are spread over into Germany; to Dresden and Leipzig, and all those districts. With respect to the question of competition between the English coal imported into Hamburg, and the Prussian coal taken by railway south, meeting in the same district, and where one competes with the other, the facts are these: that from Essen, which may be considered the centre of the Ruhr coal-field, to Magdeburg, is 249 miles; from Hamburg to Magdeburg is 170 miles; therefore there is 79 miles difference in distance. But then we must take into consideration that the coal at Essen is put into the waggons direct from the pits, and so goes to Magdeburg and elsewhere in excellent condition; whereas the British coal is first of all to be put into the waggons at the pits; it has then to be taken down to the shipping places, shipped, and then conveyed by sea to Hamburg; to be taken out of the ship again, conveyed to the railway, and put into the railway trucks, and so to Magdeburg and Germany by railway, or up the Elbe in boats. So that, in addition to the relative cost of the railway conveyance of the two descriptions of coals, you have to add the cost of conveying the English coal down to the ship, the cost of shipping it, the freight to Hamburg, the expense of delivering the coal from the ship, and conveying it to the trucks to be sent up to Magdeburg; the result is, that there is a considerable advantage in favour of the Ruhr coal, and consequently there is a very active competition between the coal from the Ruhr valley and the British coal.

1612. What is the price at which the coal is selling?—Up to this moment there has been an immense demand for the coal in Prussia. The Ruhr Valley coal has only been recently opened out, and it is selling at a very high price; it is selling now at about 8s. or 9s. a ton, there is such a great demand for it.

1613. Upon the spot?—Upon the spot; but there are very numerous Concessions opening out now, and the coal will shortly become very much cheaper, and be sold at not such a very high price above the cost of production. Mining in that valley is at present a very profitable operation.

1614. What is the cost of conveyance by railway?—I do not know the precise dues of the railway from Ruhr to Magdeburg; it will no doubt vary according to the degree of competition. The railway companies act upon the principle of getting as large an amount of dues as they can, and at present the dues are very high. The competition has scarcely come into operation yet, there not being at present sufficient coal in the Ruhr Valley to supply the demand; but I presume that when the coal is opened out in the Ruhr Valley, the railways will charge something like the same price in both cases.

1615. Mr. Fitzgerald.] Are the railways the property of the same company, or do they belong to different companies?—I think the railway from Cologne to Minden is all in one company, the Cologne and Minden Company; then it is a different company from Minden to Magdeburg.

1616. Is the line from Magdeburg to Hamburg in the same company?—It is not, I believe, the same company as from the Ruhr to Magdeburg.

1617. Does it belong to the same company as the line from Magdeburg to Minden?—No, it does not.

1618. Then there would be a competition in the cost of transport on the railways?—There would. Then you have, in that case, 79 miles of extra railway to set against the extra cost of getting the English coal to Hamburg.

1619. Mr. Villiers.] Will you state what are the expenses from Hamburg to Magdeburg, and then the prices of the same kind of coal when they meet there?—Taking the price of coal to be the same at Ruhrort as in England, you have then, in addition to the rate of freight, which averaged last year 9s. a ton, a shilling a ton conveyance to the ship; that is, 10s.; and then the expense at Hamburg of transmitting the coals from the ship to the railway; that I cannot speak very accurately about, but I should fancy it would be from 3s. to 4s. a ton, judging from the situation of the railway with reference to the shipping at Hamburg.

1620. Mr. Fenwick.] So that that is about 14s. a ton, to be set against 79 more miles of railway travelling?—Yes; say 14s. a ton additional cost to set against the 79 miles of railway.

1621. Mr. Villiers.] Those being the respective advantages possessed by the two kinds of coal, will you state what is the result of the competition, measured as it would be by the price of both kinds of coal, the English coal passing through Hamburg, and the other coming from the Valley of the Ruhr to Magdeburg?—I should think at present the price of British coal would be about the same as

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the price of the Ruhr coal, because the railway companies, coalowners, and merchants would absorb the difference.

1622. At present they sell at the same price?—About the same price at Magdeburg; but then there is a greater profit to the railway company and the coalowner of the Rhur upon the coal from Rhurort to Magdeburg than there is to the railway company from Hamburg to Magdeburg, and to the coalowner and shipowner from England to Hamburg.

1623. I suppose the supply is limited from the place which you have referred to at Ruhr, and that we do not send a sufficient supply, and therefore whatever may be the cost of the English coal at Magdeburg, that sum the people in the Valley of the Ruhr can charge?—At present there is not a sufficient quantity of coal in the Ruhr to supply the whole demand, and therefore they get very high prices and very large profits; as the coal is opened out, then the competition will tell. I think the probability is, that they will drive the English coal back from Magdeburg. I think when the Ruhr is sufficiently developed, and the coal sold at a low price, the English coal will be driven back from Germany to a considerable extent.

1624. Unless they reduce the price?—Unless the British coal can be sold at a cheaper rate. There is at present a great margin of profit to the coal of the Valley of the Ruhr; when the coal-field is developed, of course that profit will be diminished; the quantity of coal sent will be increased, and so the British coal will be under a disadvantage.

1625. *Mr. Fitzgerald.*] In the 13 *s.* which you have spoken of as being the cost of bringing the coal to Hamburg, are port dues and Stade dues, and all charges upon shipping, included or not?—They are all included in the 13 *s.* or 14 *s.*

1626. *Chairman.*] Did you say that 9 *s.* was the average cost of the English coal at the pit?—No, that was the freight. I find that the average freight last year to Hamburg was 9 *l.* 7 *s.* per keel; at present it is about 7 *l.* 15 *s.* per keel from Hartlepool.

1627. How much is that per ton?—That is for 21 tons; it is a little short of 9 *s.* per ton on the average; at present it is about 7 *s.*

1628. *Mr. Fitzgerald.*] In that are the dues and tolls included?—Yes, the dues are included in that.

1629. *Mr. Fenwick.*] You include the Stade dues?—I include the Stade dues.

1630. *Mr. Fitzgerald.*] Are any dues charged by the city of Hamburg included?—No, I have not included any dues for the city of Hamburg.

1631. *Mr. Villiers.*] There are none charged by the city of Hamburg, are there?—There are none charged for coals consumed at Hamburg.

1632. *Mr. Fitzgerald.*] No harbour dues or port dues?—I think not.

1633. *Chairman.*] If there are, are they included?—They are not included.

1634. Are there any dues payable upon English coal going into the Zollverein?—I think no English coal goes into the Zollverein.

1635. Is not Magdeburg in the Zollverein?—I do not know; I think not; I think there is no duty in the Zollverein upon English coal; but I am not certain.

1636. Does any English coal go to Harburg?—Yes, some English coal; but very small vessels go to Harburg, and it is not a profitable description of vessel to send across the Channel; therefore very few coals go to Harburg; the principal quantity goes to Hamburg.

1637. *Mr. Villiers.*] What ships are employed to carry the coal?—At present a good deal goes to Hamburg by screw colliers, and by sailing vessels also.

1638. *Mr. Fenwick.*] You have shown that the coal from the Valley of the Ruhr comes into active competition with English coal brought to Hamburg, at certain points about Magdeburg, and the manufacturing districts there; will you state whether you consider a duty, varying from 4 per cent. to 8 per cent., as we have already had it in evidence, is such a duty as tends to make you bear that competition with greater difficulty?—Any duty of course adding to the expense, seeing the competition which we are likely to encounter in Germany, must be a disadvantage to the English coal.

1639. And you, as a coalowner, complain of that?—I know that in Germany the general feeling is, that the coal in the Ruhr Valley will drive out the British coal from Germany; they expect and they think that they will be able to compete with it successfully, and even to send coals down to Hamburg and Rotterdam in competition with the English coal.

1640. *Chairman.*]

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1640. *Chairman.*] I understand you to state that 9 s. per ton is the cost for carrying coal from England to Hamburg, including the Stade dues; can you inform the Committee what, in your judgment, the per-centage of the Stade dues is upon that charge?—It is generally understood to be  $2\frac{1}{2}$  per cent. upon the value of the large coal shipped.

1641. Do you know what the Stade dues are per ton?—About 3 d. per ton, I believe.

1642. What per-centage would 3 d. be upon 8 s. 9 d., because I understand 9 s. to be the cost of the freight and charges, including the Stade dues?—About 7 l. 5 s. is the freight this year; it is about 7 s. per ton, at present; but the duty is not paid upon the freight; the duty is paid upon the value of the coal.

1643. But I ask you what per-centage of the freight and charges the Stade dues amount to?—About  $\frac{1}{16}$ th; that is, between 3 and 4 per cent.

1644. Three and three-quarters per cent.?—Yes.

1645. *Mr. Villiers.*] The duty is levied upon the weight of the coal, is it not?—It is upon the weight.

1646. According to some rule?—Yes.

1647. Which makes it  $2\frac{1}{2}$  per cent.?—Which makes it  $2\frac{1}{2}$  per cent. upon coal of the price of 10 s. per ton. I know, having exported coal myself from Hartlepool to Hamburg, that the charge has been 3 d. per ton in the invoices of the cargoes. I do not know very well how it is levied, but that is the charge.

1648. You export coal of different qualities, do not you?—Yes.

1649. Then the rate must vary, though the duty is charged by weight; yet if the quality is very different it must be a greater or less per-centage; more or less per cent. according to the quality of the coal?—It is; the coal that we export generally is a low-priced coal, and consequently the per-centage is great upon that coal.

1650. *Mr. Fennick.*] Can you tell the Committee what is the value at the place of shipment of that coal which you generally export?—About 3 s. 6 d. per ton.

1651. Three-pence per ton being the Stade toll, will you state what proportion that 3 d. per ton bears to the value of the coal; what per-centage?—If you take 3 s. 6 d. as the value of the coal, that is  $\frac{1}{16}$ th, or above seven per cent.; if you take 7 s., then it is  $\frac{1}{8}$ th, or  $3\frac{1}{2}$  per cent; therefore the per-centage upon the value varies according to the price.

1652. Is not that seven per cent. upon the value?—One-fourteenth is seven per cent.

1653. So that, in point of fact, upon that particular coal which you send to Hamburg, and which comes in competition with the coal from the Ruhr, the kingdom of Hanover levies a toll of seven per cent. upon its value?—Upon that low-priced coal it is seven per cent. Upon the round coal at 7 s. per ton, it is  $3\frac{1}{2}$  per cent.

1654. *Mr. Villiers.*] You do not yourself know upon what rule it is that they impose the Stade dues upon coals?—No, I do not.

1655. We have understood that coal was excepted from the tariff arranged in 1844, which was based upon a quarter per cent. upon all British goods?—I know that they levy the toll at present, because it was levied upon those cargoes which I sent myself last year.

1656. *Mr. Grogan.*] Where do you consider that the greatest quantity of coal, either Prussian or British, is consumed; in what part of Germany?—There is a considerable consumption at Hamburg itself; then all the towns out of Hamburg short of Magdeburg are supplied with British coal. Then when we come to Magdeburg, we encounter the competition of the Ruhr Valley coal; we send very little beyond Magdeburg, but there is a great consumption of coals beyond that city.

1657. *Mr. Villiers.*] You mean that you send very little from England?—Very little beyond Magdeburg.

1658. *Mr. Grogan.*] Do you put Berlin down as a centre of consumption?—Some description of coal from England goes to Berlin.

1659. *Mr. Villiers.*] Does that go by Stettin?—It goes by Stettin; since the Sound dues were abrogated the coals go by Stettin; but Stettin is a more expensive port.

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port from England than Hamburg; the freights are higher; when the freight to Hamburg is 7 *s.*, the freight to Stettin would be about 10 *s.*

1660. *Mr. Grogan.*] That would more than countervail the Stade dues?—That is more on account of the navigation.

1661. Would the difference in freight countervail the effect of the Stade dues?—More than that.

1662. *Mr. Villiers.*] But consider how much nearer they are to Berlin at Stettin than at Hamburg?—Yes; but they have 3*s.* additional freight to Stettin.

1663. *Mr. Grogan.*] You spoke of a particular class of coal only going to Berlin; what class is that?—Gas-coal, principally.

1664. It is not the class of coal that you ship to Hamburg?—Some of it; we supply a good deal of gas-coal to Hamburg; all the gas-coal, I suppose, of Hamburg we supply from England; and some of the continental towns likewise are supplied with gas-coal from England. There is the Continental Gas Company in London that supplies several of the continental towns, and they get their coal from the county of Durham, being excellent gas-coal. The Ruhr Valley coal, as I mentioned before, is not such good gas-coal.

1665. Then as regards Berlin, this Ruhr Valley coal does not come into successful competition with English coal there?—Except as manufacturing coal.

1666. Does it as manufacturing coal?—Yes. I believe we send no coal to Berlin as manufacturing coal. We send gas coal. I believe there is none goes to Berlin for purely manufacturing purposes.

1667. Is that owing to shipment to Stettin being a modern line of commerce, or is it owing to the charges?—It is owing to the charges; the cost of conveyance last year to Stettin would be about 12*s.* a ton for freight alone, and that makes the coal exceedingly high, and, in fact, makes it more expensive than wood for most purposes; and then the coal from the Ruhr for manufacturing purposes is taken cheaper there than the coal from Stettin.

1668. *Mr. Fenwick.*] With regard to coal that is consumed at Hamburg, what in your opinion is the effect of the Stade dues upon that coal?—The effect of the Stade dues would be to curtail the consumption and the export of coal to that city.

1669. And to that extent the dues operate as an injury to the producer of coal in England?—No doubt.

1670. *Mr. Fitzgerald.*] Does any Ruhr coal go up to Hamburg?—The Ruhr coal at present does not reach Hamburg.

1671. *Mr. Fenwick.*] The Hamburg people, that is, the consumers of that coal at Hamburg, pay the difference in price which the Stade toll occasions?—If in a state of competition between the English and Prussian coal they would.

1672. At Hamburg there is no competition?—There is no competition with foreign coal at present.

1673. And therefore at Hamburg, I understand you to say, the consumer would pay the Stade toll?—The competition amongst the English coalowners renders it difficult to say who pays the toll.

1674. *Mr. Villiers.*] I understand you to say that the coal goes on from Hamburg to other places?—From Hamburg to other parts of Germany.

1675. There are not two prices of coal at Hamburg, are there, one for the consumer at Hamburg, and the other for the exporter to Magdeburg?—No, I should think not.

1676. *Mr. Fenwick.*] In the case of that coal which comes from England and is met in competition by the Ruhr Valley coal at Magdeburg and other places of commercial industry in Germany, who pays the Stade toll then?—When competition exists, the exporter of the coal pays it, no doubt.

1677. That is, the producer of the coal in this country?—No doubt; he must take a less price by the amount of the Stade dues for the English coal, otherwise he cannot compete with the German coal.

1678. And therefore, while in the case of the coal consumed at Hamburg the Stade toll may probably fall upon the consumer, yet in the case of Magdeburg and the towns about there, where our coal comes into competition with the Ruhr coal, the Stade toll falls upon the producer of the coal in this country?



country?—Yes. I am not very sure about any Belgium coal being sent by sea to Hamburg.

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1679. But that would have to pay the Stade toll too?—It would pay the Stade toll too.

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1680. Mr. *Villiers*.] You apprehend a much severer competition from this Ruhr coal-field in future?—I do; because at present there is a demand for more coal than can be produced; the coal is consequently very high, and they are making very large profits; that has induced a great many speculators to embark in the opening out of coal there.

1681. Do you know of any other English people besides yourselves, or of any other English company, who have got a concession there?—Yes, very extensive concessions. I should think there are not less than probably 20 or 30 companies at present opening out coal in the Ruhr Valley.

1682. Are they chiefly English?—Both English and foreigners.

1683. Is that from the way in which it has answered hitherto?—Induced by the amount of profit; there is a general opinion, now that the railways are extended to all the large towns upon the Continent, that that valley will supply most of the towns, and that the coal sent from England will not be able to compete with it. That is the general impression. There is no doubt a very large margin at present for the coalowners of the Ruhr Valley to reduce the price of their coal, so as to compete with the English coal.

1684. Mr. *Grogan*.] Are you of opinion that the abolition of the Stade toll upon coals would enable the English coal to compete, at Magdeburg, with the Prussian coal hereafter, when the coalfields in this Ruhr Valley shall be developed?—It will assist very much in enabling them to do so.

1685. But do you imagine that it would enable them to compete successfully?—To a certain extent it would. I think that the collection of the Stade dues is vexatious, as well as the amount paid for them. The amount would be a fair profit upon the low-priced coal sent from England.

1686. You have already said that the coal proprietors of this Ruhr Valley have a very large margin of profit?—Decidedly.

1687. Will they ever allow themselves to be beaten out of the Magdeburg market for the sake of 3 *d.* a ton?—I think they have a much larger margin than 3 *d.* a ton; but the competition, at present, has not commenced. When we come to be in active competition, 3 *d.* a ton upon a large quantity and a low-priced coal is a considerable sum; when we have to freight the coals, 3 *d.* a ton is a considerable sum for a ship, less or more.

1688. But do you imagine that 3 *d.* a ton will ever preserve the English coal from being driven out of the Magdeburg market?—To a certain extent it will; 3 *d.* a ton may operate to turn the scale; it would certainly operate to a certain extent.

1689. Mr. *Villiers*.] I suppose that the coalowners of the North have some margin, have they not?—Not very much at present.

1690. Mr. *Fenwick*.] In the valley of the Ruhr is not labour very cheap now?—In the valley of the Ruhr labour at present is very little more than half the amount of British labour.

1691. As mining enterprise increases in that valley, may you not expect, as you find everywhere else, that labour will rise in value as the demand for it increases?—There is a great margin in the labour market at present; there is a very large population unemployed in Prussia at present; there is no difficulty in getting workmen.

1692. You think that, however much mining enterprise increases in that valley, there will be a perceptible difference in the value of labour for some time to come?—I do think so. There is one consideration with regard to the coal trade of England to Hamburg, with reference to the additional quantity of coal that would be sent if facilities were given for exporting it. We send a description of coal of little value, and of which considerable quantities are burnt at the pits in England, and it is very desirable to send that coal abroad if we can possibly do so; our profits depend more upon the large coal than the small; we are therefore obliged to screen the coals very much, and it is these screenings, which there is not a consumption for in England, that are sent abroad; getting



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rid of those small coals enables us to effect a sale of the large coals, and so to employ English labour.

1693. *Mr. Grogan.*] Am I to understand you, that in the event of the export of English coal to Hamburg being obliged to be put an end to, owing to the competition in Germany with the Ruhr Valley coal, this coal which you now send would have to be destroyed by burning at the pit's mouth?—I think a great proportion of it would.

1694. Consequently all this coal which you now export must be very cheap at the pit's mouth?—It is very cheap at the pit's mouth, and therefore a very small profit enables us to sell it.

1695. Therefore the coal exporter in England must have a considerable margin of profit upon the export of that coal?—No, it is exported below the cost of production; coal in general costs in England 6s. a ton on the average to produce, and we export the small coals at 3s., charging a comparatively higher price upon the large coal.

1696. You do not mean to say that you export your coal to Germany at a loss?—I mean that the coal that we export at 3s. per ton is 3s. below the cost price; but then we charge that 3s. upon the large coal to the consumer.

1697. *Chairman.*] It is better to get 3s. for it than to burn it, and get nothing?—Precisely; if we destroy it we get nothing for it; if we can get 3s. per ton, that is something, because it is probably 1s. or 1s. 6d. above the cost of conveyance to the shipping port.

1698. *Mr. Villiers.*] It is exported largely now?—It is exported largely, but considerable quantities are burnt.

1699. *Chairman.*] Have you sent coals yourself to Stettin?—Not on my own account, but I have sold coals to go to Stettin.

1700. Then do you speak from general reputation, or from your own knowledge of the difference of the rate of freight which you have stated as existing between Hamburg and Stettin?—I speak from my own knowledge of the freight to the different places; I know what the fitters or brokers pay as the rate of freight; they are employed to freight the vessels, and they give me the rate of freight; I take it from the books; but I myself last winter unfortunately exported coal to Hamburg, where I am afraid some of it is lying at present unsaleable; the revulsion of trade has been such, that there has been no demand for it.

1701. *Mr. Villiers.*] I think it was the case that coals did not pay the Sound dues, they were exempt for some reason or other?—The Sound dues were levied upon the ship.

1702. But coals never paid; they were always exempt?—Exactly.

1703. *Chairman.*] You say that the difference of freight is as much as 2s. or 3s., as between Hamburg and Stettin?—At present the freight to Stettin is about 10s.

1704. And to Hamburg, 7s.?—Yes.

1705. *Mr. Villiers.*] But it was 9s. last year?—The average freight of last year was 9s., to Hamburg, and to Stettin it was comparatively higher. Stettin is a considerable distance up the Sound, and ships are liable to be frozen up suddenly. I had a screw ship frozen up there last year.

1706. It did not get away in time?—It did not get away in time; fortunately there was a transient break up of the ice, and at very great expense she was got away, but I lost very considerably by the voyage.

1707. You were alluding to the labour that you could get in Prussia; is that available for the working of mines?—The general wages of colliers in Prussia are about 1s. 9d. to 2s. 3d. a day, and in England the same description of men get 4s., 4s. 6d., and 5s.

1708. Do they work as efficiently as the English workmen?—No, they do not work so much.

1709. Are they natives of the place, or do they come from some other district?—They are generally natives of the district; not immediately in the neighbourhood of the collieries, because the population requires to be collected where a colliery is established; they are brought from different places.

1710. *Chairman.*]

1710. *Chairman.*] Do the men work in the pits by the job, or by the day?—  
In both ways.

1711. Can you give us any account of how much a German charges for digging a ton of coals, and how much an Englishman charges for the same kind of work?—I have not the details of the cost before me, but I should say the Germans, generally, work coal at least 6*d.* a ton below the English cost.

1712. Then that would be a nearer measure of the relative value than 2*s.* 6*d.* and 5*s.*?—Yes; the English labour may be taken to cost in digging or hewing 1*s.* to 1*s.* 6*d.* per ton, and the German 9*d.* to 1*s.* per ton for all the descriptions of work that are task-work.

1713. In measuring the descriptions of work, you think that the difference would be from 1*s.* and 1*s.* 6*d.*, and ought not to be measured by 2*s.* 6*d.* and 5*s.*?—Just so; a great number of Germans are employed to do the same amount of work, but their wages being lower than the English, the cost is more nearly the same per ton of coals worked; I should say, the Prussian labour by the day is something like 40 per cent. cheaper than the English.

1714. *Mr. Fenwick.*] The description of labour employed in a coal-mine is not confined to the mere hewing of coal; there are a great number of other kinds of labour?—Yes. The labour which is generally done by piece-work is about 60 per cent., and the work done by day-work about 40 per cent., or something like that.

1715. *Mr. Villiers.*] Do you send any colliers from the north to Germany?—We have sent some for particular descriptions of work; for sinking pits, and such like work. They are a better class of men for those purposes, being more experienced.

1716. And you pay them higher?—We pay them higher wages; but they are, as it were, artisans.

1717. *Chairman.*] Skilled men?—Yes; there are very few common colliers that have gone from England.

1718. *Mr. Villiers.*] Not to work in the pits?—Not to work in the pits as common colliers in the Ruhrort valley.

1719. I suppose they come from Westphalia, do not they, and from the Duchy of Baden?—Partly.

1720. *Mr. Fenwick.*] Have you any other points which you wish to bring before the Committee?—I believe not. I think it would be a great benefit to England to remove the Stade dues. It is very important to promote the sale, especially of the inferior description of coal from England; and certainly every encouragement ought to be given to the export of that description of coal, because it is coal that would be wasted in England, and it would be a very great benefit to the English coalowner to get a market for that coal, and also for the English shipping to convey it. At present we know that the shipping is in a very distressed state.

1721. *Mr. Villiers.*] What shipping is that; English shipping?—Yes, English shipping is in a very depressed condition.

1722. It has been doing pretty well these last few years, I believe?—Previous to last year it paid pretty well.

1723. Have you ever known freights much higher than they have been for the last few years?—The average freight up to last year was for three or four years at very fair rates; but the screw colliers and the general depression of trade have reduced the rate of freight below paying rates.

1724. Have you screw colliers of your own?—I have some screw colliers; myself and partners have six altogether.

1725. They are not interfered with much by the shipping in the North of Europe, are they?—No, not very much; the screw colliers have reduced the rate of freight of sailing vessels very much, especially in the coasting trade.

1726. The Stade due is the same rate of duty upon this very inferior sort of coal which you export?—Yes, and it is therefore a greater per-centage on the value.

1727. *Mr. Fenwick.*] It is 3  $\frac{1}{2}$  or 3  $\frac{3}{4}$  per cent. upon the best coal, and 7 per cent. upon the very inferior?—Yes, I burn several thousands of tons a year of that description of coal which we wish to have exported, and this year we have  
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very large heaps of coal; I do not know what the result will be owing to the depressed state of the foreign coal trade, while the prices and demand for coal in Prussia are very great.

1728. *Mr. Villiers.*] You say that the screw colliers have superseded, very much, the sailing vessels?—Yes, in the coasting trade.

1729. *Mr. Fenwick.*] Do you know if any Hamburg vessels are engaged in the coal trade between the north of England and Hamburg; I mean vessels sailing under the Hamburg flag?—I cannot speak of that of my own knowledge; my impression is that there are some.

1730. In the case of a Hamburg merchant buying coals from you, and a ship sailing under the Hamburg flag taking them on board at Sunderland, and taking them to Hamburg, do you know that the coals so taken are exempt from Stade toll?—I think they are; but I do not think there can be any very large proportion. I think the quantity of coal taken in those vessels must be very small compared with the general import of coals into Hamburg in British vessels.

1731. But to the extent to which it does go, does not such an exemption operate as a differential duty against our English ships going in the same trade?—To the extent to which it is employed, of course, it operates as a differential duty.

1732. I believe you do not know very much about the shipping?—No; that is very much left to my clerks.

1733. *Sir James Graham.*] From your general knowledge, can you say that much coal is shipped in Hamburg bottoms for Hamburg from the northern parts?—In the middle of the summer, and in a few ships; but I think, generally, not a great many.

1734. You would say that not much coal was shipped from England in Hamburg bottoms for Hamburg?—I should think not, but of course that could be got very easily. There is a person in Newcastle whom we employ in the coal trade who publishes a monthly list of all the coals that are exported, where they are exported to; I think I could get a return from him.

1735. Then, though you cannot yourself now depose to the fact, you can furnish us with a table that will show it?—I think I can.

1736. Will you be so obliging as to add that to your evidence?—I will endeavour to do so.

*Veneris, 2<sup>o</sup> die Julii, 1858.*

## MEMBERS PRESENT.

Lord Ashley.  
Mr. Bowyer.  
Mr. Fenwick.  
Mr. Seymour Fitzgerald.  
Mr. Milner Gibson.

Mr. Grogan.  
Mr. Henley.  
Mr. Hutt.  
Mr. Villiers.

THE RIGHT HON. JOSEPH WARNER HENLEY, IN THE CHAIR.

Sir *J. Emerson Tennent*, called in ; and Examined.

1737. *Chairman.*] YOU are Secretary of the Board of Trade ?—I am.

Sir *J. E. Tennent*.

1738. Will you state to the Committee the amount of Stade Toll on British Exports, and the nature of the tax as it affects British trade ?—As it affects British trade, it is scarcely to be measured by figures, because the effect is more indirect than direct ; it is difficult, therefore, to show it by any statistical evidence. But, in addition to its inconveniences (which have been diminished considerably since 1844), it is a source of irritation to those whom it affects, on the ground that it is a tax without the performance of any services in return ; it therefore conveys a feeling of indignity as well as of injustice to commerce. As to its amount, that is regulated by a separate Article (B.) to the Convention of Dresden, and it establishes the principle that the amount is to be an average of a quarter per cent. ; but that is a quarter per cent. not merely upon the cost of the article at the place of lading, but upon its price at Hamburgh, which includes freight and charges. The tariff, as it at present stands, although it is considerably higher on some articles than a quarter per cent., is lower upon a great many others, and on the average it may be taken to be less than a quarter per cent.

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1739. Does the actual amount of it exceed or fall short of a quarter per cent. upon the price of the articles ?—I have just stated that the price which is taken as the basis for the calculation of a quarter per cent., includes likewise the freight and charges. I have here a copy of the tariff, in which the German money has been reduced to the English equivalents.

*Vide Appendix.*

1740. A copy of the Stade tariff ?—Of the Stade tariff, and from that it would appear that upon British manufactures the toll is comparatively trifling. On forged iron, or cast iron, it is about three-eighths of a penny per 100 lbs. ; on hardware it would be about three half-pence per 100 lbs. ; on earthenware and pottery, from three-eighths of a penny to three-fourths of a penny.

1741. Mr. *Villiers*.] Are those exceptions to the tariff ?—No ; I am selecting a few of the principal articles of British produce to show the incidence.

1742. You stated that the ground of the tariff was a quarter per cent. value ; you are now stating so much per cent. weight ?—The basis of the tariff is a quarter per cent. value, calculated per 100 lbs. weight ; on some articles the tax is considerably above a quarter per cent., and on some below it.

1743. You have not got there the value of the articles, you only refer to the weight ?—Only to the weight ; on china it is about  $7\frac{1}{2}d.$  per 100 lbs. ; on glass it is  $1\frac{1}{2}d.$  per 100 lbs. ; on manufactured copper it is  $7\frac{1}{2}d.$  ; on yarns it is  $1d.$  to  $3d.$  ; on woven fabrics it is  $9d.$  On many of these articles we have, of course,

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Sir J. E. Tennens. a reduction, by the 6th article of the treaty of 1844, of one-third; an exception to which I shall advert presently.

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1744. *Chairman.*] Those are the excepted articles?—Those are the excepted articles; but I shall come to those presently.

1745. How does the Stade duty fall upon coals?—On coals the Stade toll is high as compared with the first cost of the article; nominally it is one-eighth of a penny per 100 lbs.; but as the assessment is made on the price at Hamburg, which, as I said, includes the freight and charges as well as the first cost (and the freight may be said to be nearly as much as the cost of the coal itself in England), the tax is about 3d. per ton, and on the ordinary price of coal at the place of lading, this would be from three to four per cent. on the value. On the best class coal it would be less than I have named, but on the lowest class coal it would be considerably higher, probably from six to eight per cent. in rare instances. On an article such as coal, if we had the entire command of the supply, that sum might possibly appear trifling; but under the circumstances in which we are at present placed, and which are liable to be aggravated, namely, competition with German coal, it is quite clear that the Stade toll is sufficient to operate as a considerable discouragement to exports from this country. (*The Witness delivered in the Tariff*).

*Vide Appendix.*

1746. Does the Dresden Convention afford any grounds for giving any alleviation of the coal-tax?—The case of coal is specially provided for by the Dresden Convention, and is one of great peculiarity, and it seems to me of great hardship. The principle of adjusting the tax so as to reduce it to one quarter per cent. in the event of its exceeding that, is secured by a separate article attached to the Dresden Convention, namely, Article C., and by which it is established that the Stade toll tariff shall be liable to revision once in every 25 years, with a view to reducing it to one quarter per cent. on those articles on which it may be proved to be above that amount; but from that arrangement coals are excepted, amongst a number of articles, coffee, rice, and others. The clause, however, goes on to state, that “should a considerable and permanent diminution of price occur,” the Hanoverian Government declares that it will be “ready to meet, as far as practicable,” any wishes expressed to her, as regards the duty on such an article. But in this case the basis of that application would be “any permanent reduction in the price” of coal, which we are not in a position to state has occurred. But beyond that, the right of remonstrance is expressly reserved for “the Elbe bordering States;” so that, to us, the case of coal seems utterly hopeless, since, even supposing any permanent diminution of price to take place, we, in England, have not the power to remonstrate.

1747. Mr. Villiers.] The Dresden Convention applied only to the Elbe bordering States, and the tariff which they adopted was that adopted by us in 1844?—Yes. Our treaty of 1844 was passed within a very few months of the Dresden Convention. The ratifications of the treaty of 1844 were exchanged in August, and the Convention was concluded in April; so that by the treaty of 1844 we bound ourselves to this convention.

1748. It was the fact, was it, that we bound ourselves to what was agreed upon in April?—Yes, so long as the treaty is in force.

1749. Is coal excepted from the Dresden Convention?—No; coal is provided for by the Dresden Convention; but the exception is, that we shall not remonstrate against the tax on it.

1750. *Chairman.*] Will you state what the amount of the toll is upon the excepted articles which are admitted to the reduction of a third?—Taking the latest year in which the returns enable us to compare the exports of this country to the Elbe, and the actual receipts of the Stade toll, so far as they can be ascertained, that is, the year 1855, British and Irish produce exported in that year amounted to 8,350,228*l.*

1751. Mr. Villiers.] To what place does that refer?—To the Hanse Towns; that is the form in which our account is made up; but the vast bulk of it goes to Hamburg.

1752. In what year?—In the year 1855. In the same year the foreign and colonial produce amounted to 3,944,416*l.*, making a total of 11,694,644*l.* On this the amount of Stade toll paid was 19,545*l.*, or about 3s. 4d. per 100 lbs. weight; but nearly half the entire exports of that one year and the other similar years consisted

consisted of the privileged articles of British manufacture, which by the treaty of 1844 are admitted at a reduction of one-third on the Stade toll. Of these articles, consisting principally of cotton, linen, and woollen manufactures, and articles in metal, there was exported in 1855 quantities to the value of 6,840,809*l.*, on which the Stade due paid was 7,908*l.*, being at the rate of 2*s.* per 100 lbs. On British exports in general, therefore (including foreign and colonial produce, as well as British manufactures), the burden of the Stade toll is less than the maximum of one quarter per cent., and on the privileged articles it is but one-tenth per cent. of the value.

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1753. Mr. Fenwick.] Does the eight millions of British and Irish produce include coal?—It does.

1754. Chairman.] It has been stated here that the toll bears to the freight in the proportion of 2*l.* 10*s.* to 4*l.* 5*s.*; do you consider that a fair representation?—No, I think not; freights between this country and Hamburg are very low now, owing to the competition of rival routes, Bremen and the Baltic ports, since the abolition of the Sound dues, competing with the Elbe for the carrying trade to Northern Germany. The freight thus affords one standard by which to test the burden of the Stade toll, which on some articles exceeds the whole amount of the freight, and in many it bears a most injurious proportion to it. I have here a return of sundry articles shipped from Hull, on some of which the Stade toll exceeds the freight by from 40 to 60 per cent. On a bale of spun silk, of the weight of 200 lbs., the amount of freight would be 1*s.* 1*d.*; the amount of Stade toll would be 1*s.* 3*d.*, being in the proportion of 115 per cent. to the freight; on cotton goods it would be 142 per cent.; on a bale of carpets it would be 102 per cent.; on a case of linen it would be 162 per cent.; and so on. (*The Witness delivered in the return.*)

Vide Appendix.

Vide Appendix.

1755. That is the proportion of the dues to the freight?—Yes; to the freight on those particular articles. But as to the question of the proportion which the Stade toll bears to the freight on British exports generally, it is very difficult, if not impossible, to present accurate information, because, in the first place, we have no precise details obtained from Hamburg as to the exact quantities of particular articles which are landed there, which alone would have enabled us to calculate the proportion which the Stade toll bears to the freight upon each. In the next place the number of colliers whose cargoes pay the lowest rate of toll in proportion to the freight is so great, amounting to nearly one-half of the whole, that to average the Stade toll over the entire tonnage clearing out from the United Kingdom would be deceptive. On coals the freight is about 7*s.* 6*d.* per ton, and the Stade toll 3*d.*; so that on half of the ships sailing between Great Britain and Hamburg, the Stade toll does not bear to the freight a greater proportion than from three to four per cent. But, on the other hand, on the rest of our trade the proportion is considerably higher. For instance, the Stade toll amounts to 7½*d.* per 100 lbs. weight, or 14*s.* a ton on the following articles, among others, namely, books and paper, cocoa, confectionery, spices, tea, tobacco, porcelain, manufactured leather, candles, fine oils, raw silk, and silk thread. On these the present freight is about 20*s.* a ton, so that the Stade toll on these is, as to the freight, upwards of 70 per cent. On woven fabrics of all sorts the Stade toll is 9*d.* per 100 lbs. weight, and this, on 20*s.* freight, would be upwards of 75 per cent.; but on all those, except silk, we have a reduction of one-third by the 6th article of the treaty, so that linen, cotton, and woollen fabrics pay in the proportion of 12*s.* Stade toll, say on 20*s.* freight, or about 60 per cent. If therefore we except the highest articles, such as I have been enumerating to the Committee, and if we also except the lowest, such as coals, on the remaining class of the goods which form the mass of our exports from this country to the Elbe, such as cotton, yarns of all sorts, iron, oil, and coffee, &c., &c., the Stade toll being little more than a penny per 100 lbs. weight, may be said, on an average, to be about 22*d.* per ton, or about 10 per cent. on the freight.

1756. What does the amount of Stade toll come to on the cargo?—That is a more compendious method of estimating the pressure of the Stade toll; by looking at its incidence upon the whole cargo, say on an average on ships of 250 tons or thereabouts, and taking the number and tonnage of ships of all flags arriving at Hamburg from the United Kingdom in 10 years, that is, from 1846 to 1855, the Stade toll averaged per cargo, 9*l.* 14*s.* 7*d.*, or per 100

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tons, 4 *l.* 2 *s.* 2 *d.* I will put in a table showing those results. Now that calculation is made indiscriminately upon ships carrying general cargoes, as well as upon those laden exclusively with coal or coke, which form nearly half of the whole number; and their cargoes being comparatively of small value, reduce the general average of the toll.

1757. Excluding coals, what would the average be upon the general cargo?—By discriminating the coal ships from those carrying a general cargo of goods, the toll would be upon the general cargo, 17 *l.* 14 *s.* 9 *d.*, or per 100 tons, 6 *l.* 8 *s.*; whilst on coals it would be per cargo, 3 *l.* 1 *s.* 7 *d.*, or per 100 tons, 1 *l.* 10 *s.* 10 *d.* (*The Witness delivered in the Return.*)

Vide Appendix.

1758. Will you state how the matter stands as to the difference between the trade carried on in British ships, and in foreign ships?—The return which I have put in, includes cargo from the United Kingdom, under whatever flag it may have been carried. But if we take goods carried exclusively under the British flag, the average of the Stade dues on British ships arriving at Hamburg during the same period, namely, from 1846 to 1855, would be on the cargo, 10 *l.* 16 *s.* 9 *d.*, and per 100 tons, 8 *l.* 19 *s.* I will put in return No. 4, to show that (*delivering in the same.*) On other flags generally, the Stade toll is 5 *l.* 12 *s.* 5 *d.* per 100 tons, whilst on ships under the British flag, it is 3 *l.* 19 *s.* It must be observed, however, that the latter return includes coals as well as general cargo.

Vide Appendix.

1759. That is per 100 tons?—Per 100 tons.

1760. Will you give its bearing previous to 1844 and since 1844?—The returns I have just put in show the average of the Stade toll over a period of 16 years, under the tariff of 1844. But a singular result is exhibited on taking a longer period, and comparing the effects of the toll under the present tariff with its proceeds under the former system prior to 1844: in the five years before the reduction of 1844 the Stade toll averaged, on cargoes arriving from Great Britain, 6 *l.* 13 *s.* 11 *d.* per 100 tons; in the next five years it fell to 3 *l.* 19 *s.* 3 *d.* per 100 tons, and it rose in the years from 1851 to 1855 to 4 *l.* 3 *s.* 10 *d.* per 100 tons. I will put in a return which will exhibit that result (*delivering in the same.*) By the return which I have just put in, it will be seen that, except in rare instances, no corresponding rise took place, between 1846 and 1855, on cargoes under the Dutch, French, or Belgian flag. Looking at the goods carried exclusively by the British flag, the same rise is observable as upon goods exported from Great Britain under all flags; and as no change has taken place in the scale of the Stade toll during those periods, this increase on the receipts on British shipping must be ascribed to increased importations of those articles which pay the highest rates, although I have not found it practicable to exhibit this change by actual statistics.

Vide Appendix.

Vide Appendix.

1761. It has been stated to this Committee that the tolls, as at present levied, impose no disadvantages upon this country, as compared with other countries; is that your opinion?—No, it is not; I think there are incidents in the system which give advantages to other countries, to our prejudice. These are of two classes; some of them are attributable directly to the policy of Hanover, and to legislation; others are the natural result of causes unconnected with direct legislation or diplomacy. In the first class, the most prominent are the exemptions from the payment of the Stade toll enjoyed by certain classes; for instance, goods the property of German princes are not liable to the toll, and goods the property of Hamburg citizens, carried on board Hamburg ships, are equally exempt from the impost. There are some other exemptions, such as inland goods ascending the Elbe, goods for fairs, and a number of articles, manure, and such like, enumerated in connexion with the Riveraine Convention of 1844.

1762. Mr. Villiers.] Are these goods which are going to fairs goods from England?—No, I apprehend they are continental goods going to Leipsic and other inland fairs.

1763. Chairman.] Does the exemption in favour of Hamburg affect us in the direct or the indirect trade?—Chiefly in the indirect trade, but it affects us in both ways. The exemption of the goods of Hamburg citizens does not apply to goods in transit; they must pay the Stade toll at Hamburg, whether carried in Hamburg ships or not; but its injustice to British shipping is chiefly felt in the Transatlantic trade, in which trade Hamburg shipping is largely engaged; and

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in their hands goods carried on account of Hamburg merchants are imported free; whereas the same articles, if introduced from Great Britain in British ships, must pay the toll. Sir J. E. Tennent.

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1764. Mr. *Villiers*.] What Transatlantic trade do you refer to?—The West Indian trade and the Brazilian trade; for example, coffee from Brazil.

1765. That is in Hamburg vessels?—In Hamburg vessels; that would be free, if imported, on account of Hamburg citizens; thus the carrying trade in these articles in our hands is prejudiced by the toll, to the favour of the shipping of Hamburg. In the direct trade it is only of late years that the shipping of this country trading to the Elbe has begun to feel the inequality created by the exemption of Hamburg, and that chiefly in the lines of steamers that ply from the east of England, and especially from London to Hamburg. One of the London lines being entirely in the hands of Hamburg citizens, goods carried on account of Hamburg citizens in those vessels are free; and I have heard to-day that a similar exemption will hereafter extend to the steamers on the Hull line, inasmuch as those ships have recently been disposed of to Hamburg citizens, and they therefore will share in the same privilege as those on the London line. At the same time it must be borne in mind that the exemption only applies to goods on account of Hamburg citizens, and therefore only to a portion of the cargo carried even in Hamburg vessels; but goods shipped from this country in Hamburg vessels for transit would not be entitled to the exemption, and would not come into competition with similar goods carried on board English ships.

1766. Has France any advantage over us in respect of the Stade dues?—France has an advantage over us in consequence of the extension of the European system of railways, which enables her to send portions of her produce free of toll altogether, in consequence of sending it by land.

1767. Does that at all apply to Belgium?—Yes, in the same way Belgium has the advantage of the same system of railways as carries the French produce.

1768. Mr. *Villiers*.] If French goods do not come into competition with ours, if they do not send them by sea, how is that any disadvantage to us?—The question put to me was whether France had any advantage over us in relation to the Stade toll, and I show that by means of railways France can emancipate a large proportion of her produce from the payment of the toll; whereas we, who must still continue to send ours by sea and the Elbe, must remain subject to the tax.

1769. Has Holland any means of escaping the toll?—Yes, Holland has one means of escape through Harburg. Holland has a large carrying-trade in colonial produce, and her ships being engaged in the coasting trade, and having a small draft of water, are enabled to ascend that branch of the Elbe, the Kohlbrand, which goes to Harburg, from which English vessels, by reason of their large size, are excluded.

1770. The Dutch ships in those seas do not draw much water, do they?—No, not those in the Harburg trade.

1771. *Chairman*.] Can you state the proportion of Stade toll paid by Great Britain?—I have found it very difficult to obtain any accurate information as to the gross amount of Stade toll received by Hanover, no official publication having hitherto been made to which I have access; but from a Hanoverian source I have been enabled to obtain a return which I believe is correct, and which I shall put in. It shows that down to the year 1854, which is the latest period regarding which I have been able to gain information, the gross amount of toll was 36,963 *l.*, from which is to be deducted the expenses of collection, which were 5,924 *l.*, leaving a net balance of 31,029 *l.*

(*The Witness delivered in the following Table.*)



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## STADE DUES.

## TOTAL RECEIPTS, EXPENSES, and NET RECEIPTS.

YEARS.	RECEIPTS.		EXPENSES.		NET.	
	<i>Thalers.</i>	£.	<i>Thalers.</i>	£.	<i>Thalers.</i>	£.
1834-35	175,731	26,360	22,445	3,366	153,286	22,992
1835-36	-	-	-	-	158,792	23,819
1836-37	190,488	82,572	24,275	3,641	166,213	24,931
1837-38	-	-	-	-	189,343	28,401
1838-39	-	-	-	-	201,875	30,281
1839-40	-	-	-	-	206,407	30,960
1840-41	-	-	-	-	188,500	28,275
1841-42	278,986	41,090	23,896	3,585	250,040	37,506
1842-43	255,490	38,324	25,771	3,866	229,719	34,457
1843-44	-	-	-	-	238,601	35,790
1844-45	-	-	-	-	193,158	28,973
1845-46	187,988	28,190	45,284	6,792	142,654	21,398
1846-47	-	-	-	-	119,251	17,888
1847-48	-	-	-	-	140,231	21,034
1848-49	-	-	-	-	102,714	15,407
1849-50	221,101	33,165	40,414	6,061	180,687	27,102
1850-51	194,978	29,246	39,682	5,952	155,296	23,294
1851-52	223,903	33,585	40,428	6,063	183,475	27,520
1852-53	216,268	32,439	38,897	5,884	177,371	26,555
1853-54	215,566	32,384	39,846	5,976	175,720	26,408
1854-55	246,429	36,963	39,569	5,934	206,860	31,029

1772. Mr. Villiers.] Do you know what proportion we pay of that?—There are two modes in which to regard the share of this burden which is borne by the trade of the United Kingdom. First, the proportion of it paid upon cargoes exported from the United Kingdom, under whatever flag they may have been carried to Hamburg or the Elbe. Secondly, the proportion in which the toll has been paid upon goods carried exclusively by the British flag from all countries. As to the first calculation, goods exported from the United Kingdom on an average of 10 years, from 1846 to 1855, paid 22,383 £., or 55 per cent. of the entire toll.

1773. That is the average payment in 10 years, is it?—Yes, from 1846 to 1855. Goods carried exclusively by the British flag in the same period paid 19,545 £., or 45 per cent. of the whole toll.

1774. Those are not English goods necessarily?—No, those are goods of all kinds carried by the British flag; not British produce alone, as these returns include foreign and colonial produce as well; coffee, tea, rice, sugar, indigo, cotton, and so forth.

1775. They are classed in your first designation as goods coming from the United Kingdom; that includes colonial produce?—Yes; for example, the total declared value of British and Irish produce exported to Hamburg in 1857, was under 10,000,000 £. sterling, having been 9,606,212 £., and the foreign and colonial produce exported from the United Kingdom in the same year, was 3,260,543 £., making a total of something under 13,000,000 £. In 1856 the total was 13,062,417 £. In 1855, it was 11,684,644 £. Now the same table which exhibits this, shows likewise the proportion in which all other countries paid the tax at the same periods. These tables I should state to the Committee refer only to the arrivals at Hamburg, and do not include the small amounts of Stade toll paid at Altona, or at Stade. But these are trifling and would not affect the general result. I have already alluded to the fact that, owing to the opening of railways, and other causes, other countries are gradually emancipating themselves from the Stade toll, whilst we, who must continue to use the route by sea and the Elbe, still remain liable to it. The result is, that these European and Continental countries, year by year, contribute less and less to the receipts, whilst the proportion paid by English goods and the English flag, goes on augmenting from year to year. Goods from Great Britain paid to the Stade toll in the five years before the toll was reduced, in the proportion of 45 per cent.; they paid in the five years afterwards 52 per cent.; they paid between 1851 and 1856, 57 per cent.; whilst at the same time Brazil paid,

in the first period, 12 per cent., in the next, nine per cent., and in the next nine per cent; the Netherlands paid nine per cent. in the first period, nine per cent. in the second, and four per cent. in the last; France paid six per cent. in the first period, six per cent. in the second, and three per cent. in the third; the United States paid three per cent. in the first period, two per cent. in the second, and three per cent. in the last; Belgium paid two per cent. in each period. That is on goods; but looking exclusively to flags: the British flag in the first period, paid 45 per cent., in the second period 42 per cent., and in the third 47 per cent.; the Dutch flag paid seven per cent. in the first period, seven per cent. in the second, and six per cent. in the last; Denmark paid eight per cent. in the first period, six in the second, and five per cent. in the last; France paid four per cent. in the first period, four in the second, and two per cent. in the last; the United States paid three per cent. in the first period, and two per cent. in the last.

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[The Witness delivered in the following Tables.]

PROPORTION in which Cargoes from various Countries contributed to the STADE TOLL.

	Five Years, 1839 to 1843.	Five Years, 1846 to 1850.	Five Years, 1851 to 1856.
Great Britain - - - -	45·7 per cent.	52·4 per cent.	57·6 per cent.
Brazils - - - -	12·9 "	9·7 "	9·7 "
Netherlands - - - -	9·5 "	7·7 "	4·9 "
France - - - -	6·9 "	6·6 "	3·7 "
United States - - - -	3·8 "	2·6 "	3·4 "
Belgium - - - -	2·2 "	2·6 "	2·3 "

PROPORTION in which British and Foreign Flags respectively contributed to the STADE TOLL.

	Five Years, 1839 to 1843.	Five Years, 1846 to 1850.	Five Years, 1852 to 1856.
British - - - -	45· per cent.	72·9 per cent.	47·2 per cent.
Hamburg - - - -	13·1 "	17· "	19·5 "
Netherlands - - - -	7· "	7·5 "	6·5 "
Denmark - - - -	8·6 "	6·5 "	5·3 "
Hanover - - - -	3·8 "	4·2 "	3·8 "
France - - - -	4·7 "	4·6 "	2·4 "
United States - - - -	3·4 "	2· "	2· "
Prussia and other German States	4·1 "	4·4 "	3· "

1776. *Chairman.*] Are those relative increases upon the British payments over the respective payments of other countries which you have named owing to the increase of the British trade, whereas the trades of other countries have stood still or have decreased in amount, or have they all increased, the British trade having only comparatively increased, how does that stand?—Other countries have been enabled, as I have stated before, to emancipate themselves to some extent through other channels, and consequently there is an actual decrease in the amount contributed to the Stade toll on their part, whilst we, owing to the nature of our trade, and having but the one channel, namely, the sea, by which to carry it, remain subject to the tax, consequently we pay in a larger proportion than those other countries.

1777. While the amount of the tax has increased altogether, we have paid a larger proportion of it?—Yes.

1778 Mr. *Villiers.*] How do you mean, that we are confined to one mode of conveying our goods, whilst others are emancipated; we could send a vast amount of goods, if we chose, by other routes, just as well as other countries, could not we?—I doubt if we could to Hamburg with a commercial profit.

1779. Why do you think so?—I give the instance of France, which I have alluded to before; and that of Belgium, in which the goods are produced, it may be said, at the terminus of the railway; but were we to make use of those railways, we should have the preliminary operation of the sea voyage.

1780. We have already the preliminary voyage to Stade?—Yes, but then we have not in that case the expense of the railway.

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1781. Are you prepared to show, or give us any proof whatever, of any country who did formerly send goods by sea now sending them by rail?—France, for instance, I have alluded to distinctly.

1782. *Chairman.*] Do the returns in the department to which you are attached show the effect upon British commerce, and shipping produced by the Stade toll?—I have found extreme difficulty in producing any statistical evidence to show the direct effect of the Stade toll upon British trade; in fact its effect we can only speculate upon as something theoretical, but when applied to the test of our own returns, they fail to exhibit precise results. It seems to be undeniable, that a tax unrequited by any services in return, to the amount of one quarter per cent. upon the value of the commodity, and from 10 to 15 per cent. upon the freight, must be a great discouragement to competition, and must likewise tend to discourage consumption, even where competition does not exist. But in the meantime our trade returns for many years past show no diminution in our commerce with the Elbe, notwithstanding this discouragement. In the year 1857, there is a decline in our exports to Hamburg as compared with 1856; but this is attributable to other and temporary causes, and cannot be traced entirely to the operation of the Stade toll. And compared with 1855, the exports of 1857 were greater by more than 1,250,000 *l.* The fact already exhibited of the progressive increase in the gross receipts of the Stade toll since 1844, whilst there has been no alteration in its scale, is of itself evidence of the general increase of our trade, notwithstanding the influence of the impost, because the rates of the Stade toll have not been varying, whilst the amount produced has been enlarging; and whilst the trade of other countries to the Elbe has been fluctuating, the trade of this country may be said to have been almost uniformly steadily increasing. The value of British and Irish produce exported from the United Kingdom to the Hanse Towns and Hanover has risen from 5,598,511 *l.* in 1841 to 11,244,466 *l.* in 1857; and our Foreign and Colonial exports which in the year 1854 amounted to 2,853,043 *l.*, rose to 4,063,465 *l.* in 1856, and in 1857 to 3,003,379 *l.* I will put in a return showing the total declared value of British and Irish produce exported from the United Kingdom to the Hanse Towns and Hanover, between 1841 and 1851.

1783. Will that return show the trade to Hamburg as well?—It is in form to the Hanse Towns generally, but that refers mainly to Hamburg.

[*The Witness delivered in the following Table.*]

TOTAL DECLARED VALUE of British and Irish Produce Exported from the United Kingdom to Hanse Towns and Hanover.

YEARS.					TO HANSE TOWNS.	TO HANOVER.
					£.	£.
1841	-	-	-	-	5,521,471	77,040
1842	-	-	-	-	6,027,160	135,579
1843	-	-	-	-	6,008,253	110,803
1844	-	-	-	-	5,983,524	132,142
1845	-	-	-	-	6,304,522	166,002
1846	-	-	-	-	6,326,210	218,111
1847	-	-	-	-	6,007,366	147,357
1848	-	-	-	-	4,669,259	141,249
1849	-	-	-	-	5,386,246	150,927
1850	-	-	-	-	6,755,545	231,987
1851	-	-	-	-	6,920,078	227,288
1852	-	-	-	-	6,872,753	365,843
1853	-	-	-	-	7,093,314	472,179
1854	-	-	-	-	7,413,715	228,504
1855	-	-	-	-	8,350,228	337,354
1856	-	-	-	-	10,134,813	1,021,485
1857	-	-	-	-	9,606,212	1,638,254

REAL VALUE of Foreign and Colonial Produce :

1854	-	-	-	-	2,720,274	132,769
1855	-	-	-	-	3,344,416	174,741
1856	-	-	-	-	3,260,543	741,246
1857	-	-	-	-	3,003,379	883,660

# SELECT COMMITTEE ON THE STADE TOLLS.

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1784. Can you give the Committee any information with respect to the effect of the Stade toll upon the British shipping resorting to the Elbe as contra-distinguished from the merchandise?—I have a return here of the total value of the imports to Hamburg itself from Great Britain, from 1845 to 1856. It shows that the exports to Hamburg have risen from 7,000,000*l.* in 1845 to 13,000,000*l.* in 1856. That includes both British and colonial produce to Hamburg (*delivering in the following Table*):—

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TOTAL VALUE of Imports at Hamburg from Great Britain in each Year from 1845 to 1856.

YEARS.						VALUE.
						<i>£.</i>
1845	-	-	-	-	-	7,035,955
1846	-	-	-	-	-	6,892,380
1847	-	-	-	-	-	7,582,572
1848	-	-	-	-	-	5,770,699
1849	-	-	-	-	-	6,761,110
1850	-	-	-	-	-	8,083,118
1851	-	-	-	-	-	8,121,660
1852	-	-	-	-	-	9,228,597
1853	-	-	-	-	-	10,692,149
1854	-	-	-	-	-	11,187,057
1855	-	-	-	-	-	12,037,092
1856	-	-	-	-	-	13,062,417

Now the shipping returns of the United Kingdom go to sustain the same conclusion. The principal trade between this country and Hamburg is from ports on the east coast, namely, Hull, Hartlepool, Newcastle, London, and several minor places; and from them all, with scarcely a single exception, the returns show an increase of shipping in 1856 over 1853, which is the period for which the return is made out. That return I shall likewise put in (*delivering in the following Table*):—

TOTAL NUMBER of VESSELS (with Cargoes and in Ballast) entered at the Port of Hamburg, from the principal Ports on the East Coast of England, in each of the Years from 1853 to 1856.

PORTS WHENCE ARRIVED.	1853.	1854.	1855.	1856.
Grimsby - - - - -	50	55	78	52
Hartlepool - - - - -	261	303	381	405
Harwich - - - - -	35	39	30	48
Hull - - - - -	219	237	248	260
London - - - - -	274	363	296	387
Middlesbrough - - - - -	84	106	109	97
Newcastle - - - - -	265	300	297	438
Shields - - - - -	64	76	99	
Seaham - - - - -	20	37	19	26
Stockton - - - - -	20	17	24	6
Sunderland - - - - -	183	130	165	237

The returns of the shipping for the United Kingdom generally present the same results. In 1853 the number of vessels that cleared out from the Hanseatic Ports was 1,364; in 1856 there were 1,934, and the tonnage increased from 323,000 tons to 495,000 tons. I have likewise a return here which shows the arrivals at Hull from Germany between 1830 and 1856; and although by this return which I am now about to put in, the number of ships entering has not increased, yet their tonnage has more than doubled, being 30,784 tons in 1830, and rising to 66,276 in 1856. (*The Witness delivered in the Return.*)

Vide Appendix.

1785. Mr. Grogan.] Is that tonnage principally steam tonnage?—Principally steam; I apprehend so.

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1786. *Chairman.*] The British trade to the Elbe appeared to fall off in 1857, in a considerable degree as compared with 1856, is there anything particular in reference to that falling off upon which you wish to observe?—Mr. Saunders, a former witness, stated to the Committee, that there never had been a year at Hamburg in which trade had been so active, or in which there had been so large an increase as in the year 1857, but that in that year British trade had fallen off, and that in his opinion the principal cause of the decline was the Stade toll. That there was a great apparent increase in the trade of Hamburg in 1857, is quite true if you look merely to the value of the goods imported, but it so happens that between 1856 and 1857, there was so considerable an increase upon the price of imports into Hamburg, especially raw materials and colonial produce, that on the average of 100 lbs. (which is the shape in which they are given by the Hamburg returns), the value of all imports into Hamburg in 1857, rose to 1*l.* 2*s.* 1*d.* per centner, whereas it had only been 1*l.* 0*s.* 9*d.* in 1856. Therefore if you look at the price, Mr. Saunders is quite correct in saying, that the returns show a vast increase in the trade of Hamburg in 1857; but if you look at the quantities imported in that year, so far from there being an increase, there is a slight decline.

1787. *Mr. Villiers.*] Do you speak of English goods, or goods of all kinds?—Of all kinds; the value of goods imported to Hamburg, exclusive of bullion in 1856, from all countries was 39,586,500 *l.*, and in 1857 it was 41,487,400 *l.*, showing an increase in the value of 2,260,900 *l.*; but when you come to look at the quantities, they were nearly the same. The number of centners imported into Hamburg in 1856 was 37,970,434. In 1857, there were 37,955,364 centners, showing a positive decrease of 15,000 centners. Mr. Saunders stated likewise, that during that year there had been a decrease in the imports from England, which is quite true; there was a decrease during the year 1857 both in weight and value, but not to any serious amount.

1788. Did the value increase with respect to British goods, though as you state there was a decrease as to quantity?—No doubt it did, but by no means in the same rates on British manufactures as on Colonial produce and cotton; the value of the British goods is included in the other goods, which I have given in. Mr. Saunders has been misinformed as to the diminution on the gross quantity imported; the drift of his argument was, that during the year 1857, whilst the trade of Hamburg had increased unprecedentedly, the portion of it carried on with England had declined. Now, it is quite true there was a decline in the trade carried on by England during that year to Hamburg, but that is far more than counterbalanced by the increase to other neighbouring ports. For instance, the decrease in the value, as shown by the return I before put in of exports to Hamburg from Great Britain in 1857, was on British and Irish produce 528,601 *l.*, and on Foreign and Colonial produce 257,264 *l.* That is the decrease to Hanse-Towns generally, including Hamburg. To Hamburg itself the decrease was greatly less, and would, by the Hamburg return, appear to have been about a quarter of a million sterling. But simultaneously with this decrease to Hamburg, there was an increase to Harburg of nearly the same amount. The decrease to Hamburg was, say, taking our own returns for the Hanse-Towns, 528,601 *l.*, but the increase to Harburg was 616,769 *l.*, that is on British produce, and on Colonial produce the increase to Harburg was 142,314 *l.*, opposite a decrease at Hamburg of 257,264 *l.*, being a total increase at Harburg of 759,085 *l.*, opposite a total decrease at Hamburg of 775,865 *l.* Now that is to Hanover alone, so that the increase to Hanover in that year nearly balanced the decrease to Hamburg. But in addition to this, the increase to Prussia in that year was 821,403 *l.*

1789. *Chairman.*] To what ports does the Prussian trade go?—Chiefly to Stettin. The impression upon Mr. Saunders' mind was, that that diminution in the British trade during that year was principally caused by the Stade toll, so he states in No. 885 of his evidence.

1790. All that the Stade toll could have done would have been to divert the trade to Harburg and Stettin, instead of letting it go through Hamburg?—I doubt much whether it is the Stade toll that diverts the trade either to Stettin or to Harburg; I believe it is almost entirely attributable to other causes. But the decline to Hamburg is simultaneous with a great increase of our trade *via* Stettin and *via* Hamburg and Bremen.

1791. *Mr. Villiers.*] Bremen is one of the Hanse-Towns?—Bremen is one of the Hanse-Towns. Mr. Saunders likewise stated another very striking fact upon that

that occasion, that whilst there was such an increase in the general trade of Hamburg in the year 1857, the proportion of British shipping employed on the river in that year had fallen off from 62 per cent., which it had been in 1849, to 58 per cent. in 1857. Sir J. E. Tennent.  
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1792. British shipping where?—On the Elbe. But although the proportion changed on the Elbe, the gross quantity of British shipping employed on the river was greater than ever. The proportion of Hamburg shipping on the Elbe in that year underwent a vast change. Hamburg merchants, until very lately, could be scarcely said to be the owners of shipping at all. Some 15 or 20 years ago, they were chiefly merchants, but within the last 15 or 20 years Hamburg merchants have become large proprietors of steam vessels, and all their steamers, or the larger portion of them, are employed on the Elbe. That contributes to alter the proportion of British shipping employed on the river, compared with the other flags of which Mr. Saunders spoke. Besides, it must be remembered that the alteration of the proportion of shipping under the British flag going to Hamburg is in a great degree ascribable to the large proportion of it that now goes to Harburg. In 1849, the year from which Mr. Saunders's first proportion of 62 per cent. is taken, we only sent 32 ships to Harburg, but in 1856 we sent 682 ships there.

1793. Mr. Villiers.] When was the duty remitted in favour of the port of Harburg?—In 1850. As regards the trade of Hamburg, I shall put in a return here of the British tonnage that entered the port of Hamburg in every year from 1846 to 1856. In 1846 it was 84,367 tons, and in 1857, 205,401 tons, showing, as I stated before, that although the proportions are altered, there is a vast increase in the gross tonnage resorting to the river. During the same period, the foreign shipping employed upon the river, exclusive of British and Hamburg, rose from 71,000 tons in 1846, to 118,000 tons in 1857. But the Hamburg tonnage has risen from 30,000 in 1846, to 92,000 tons in 1857. That bears out what I have already stated to you of the alteration that has taken place in Hamburg in recent years from their becoming proprietors of shipping (*delivering in the Return*). Now the result of that Return is curious; it shows that Hamburg shipping has increased in the ratio of 248 per cent., British shipping on the Elbe 102 per cent., and foreign shipping 99 per cent.; but still with all that increase on Hamburg shipping, it is only now, in 1857, about the amount that our shipping going to the river was in 1847, so that the increase is on a much smaller area, and is not to be taken as a measure of the general increase of the trade. One consideration might suggest itself, namely, that this great increase in Hamburg shipping was owing to its exemption from the Stade toll. But if you keep in mind that the exemption can only bear upon that portion of the cargo which belongs to Hamburg citizens, it will show you that the increase could only have been influenced by that in a very small ratio. I am sorry to say, that we have no statistics from Hamburg which will show the proportion of her trade exempted from the Stade toll, and as goods in transit *via* Hamburg pay the Stade toll, and a vast proportion of the entire trade of the city is transit, it follows that the partial exemption is not sufficient to account for the increase in the gross shipping of the port. As to the decrease of British exports to Hamburg, that in like manner is not to be ascribed to the influence of the Stade toll alone, but to the attraction of other routes, such as Harburg and Stettin, where British goods find a more economical entrance into the portions of Germany for which they are destined. I have found it very difficult to demonstrate the sinister influence and the prejudicial effect of the Stade toll by any statistical evidence. In fact all the tables which I have been putting in, as the Committee will observe, are rather evidences to the contrary. But nevertheless, it is impossible to divest ourselves of the conviction that it is one of the causes which is in operation prejudicial to our trade with Hamburg. In order, however, to show its effect, it must be combined with the tolls upon the upper river; and likewise with the transit dues by the German railways. Those are the three causes which are operating at the present moment to the discouragement of the trade with Hamburg, and are contributing to send it into new channels. Much evidence appears to have been given here with regard to Harburg and to Stettin. I do not believe that the Stade toll has been the moving cause of sending the trade either to the one or the other. As regards Stettin, there is no doubt that there is a large proportion of the trade which formerly went to Hamburg, so long as the Sound dues existed, but which since

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the taking off of the Sound dues now goes to Stettin, and ought always to have gone by that route, because it is destined for that portion of Prussia, and Harburg has no right to complain of the obstacle of the Sound dues being removed, and that it now goes in its natural channel. In the same way, with regard to Harburg, it is quite sufficient if you glance at the map to see that Harburg is the natural port for supplying that portion of the Zollverein which lies on the south bank of the Elbe; and I believe that no very large proportion of the trade is now going *via* Harburg more than ought not in its natural channel to go there. But Harburg has a just right to complain, if it can be clearly shown that, owing to the interposition of the Stade toll, any portion, however small, of the trade that ought to flow through her city is diverted to any other channel.

1794. *Chairman.*] Will you now proceed to the case of Harburg, and state how far the people of Harburg may be uneasy at seeing the rising trade of Harburg as affecting their trade with this country?—It is natural that the people of Harburg should entertain a feeling of uneasiness at the increase of Harburg; but if that complaint is, as it has been addressed to us on behalf of British interests, I do not see how we are affected by it prejudicially. To us it must be an advantage that any port, such as Harburg, should be free to our shipping; that 600 or 700 vessels from this country, which otherwise would have been exposed to the liability and inconveniences of the Stade toll, should be exempt from it altogether.

1795. *Mr. Villiers.*] Are you not overlooking the shallowness of the water, and the difficulty of vessels arriving there with any great cargoes?—I am quite aware of that, and that owing to that shallowness of water the arrivals at Harburg must be confined to vessels of a small tonnage, so that the large steamers which constitute the class that usually frequent the Elbe under the British flag are shut out from it, not by the Stade toll, but by their own bulk, it being impossible for them to ascend the river.

1796. It is not any great convenience to us to have a port into which we cannot send our vessels, or cannot send vessels sufficiently large to carry cargo at a profit?—We send our coal vessels there.

1797. The screw-colliers?—I am not sure that they are screws; I think they are chiefly sailing vessels that go to Harburg.

1798. I think that we have had evidence here that the greater portion of the coal is sent in screw-colliers to Harburg. That they cannot go to Harburg, whatever the destination of the coal may be, but have to be discharged at Harburg?—You have the fact that at the present moment between 600 and 700 British vessels do go to Harburg; the larger portion of them being freighted with coal.

1799. *Chairman.*] Have you seen a return, published at Harburg, which shows the state of the increase of the British trade to Harburg?—I should like to remark with regard to that return which has been disseminated by the Free Trade Association of Harburg, that it shows that the British trade from England to Harburg between the year 1850 and the year 1855 had risen from six tons to 106 tons, and that the Dutch vessels had risen from 32 in 1849 to 526 in 1855; but this return is fallacious.

1800. Is it correct?—No, it is quite incorrect.

1800\*. Will you state wherein it is incorrect?—In fact the arrivals from England are erroneously set down as the arrivals from Holland, and the arrivals from Holland figure as arrivals from England.

1801. *Mr. Villiers.*] Will you state what is your authority for alleging that incorrectness?—Official returns from Hanover itself. The pamphlet likewise represents the entire arrivals as vessels in cargo; whereas a very large proportion, nearly one-fourth, are vessels in ballast.

1802. That is, vessels which go to Harburg?—Which went to Harburg in these years.

1803. I thought you said the largest proportion were laden with coals?—I speak of the entire shipping, as represented by this pamphlet; but I can now put in a correct return which will show what the statement ought to have been, and from which it will be seen, that the total arrivals at Harburg with cargoes have risen from 36 in 1849 to close upon 1,000 in 1856, and that 682 entered from Great Britain in 1856, whereas only six entered in 1846—(*delivering in the Return, which is as follows*):—

ARRIVAL

ARRIVAL of Sea-going Vessels at *Harburg*.Sir *J. E. Tennent*.

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Y E A R S.	From Great Britain, with Cargoes.	From Holland and Belgium, with Cargoes.	Vessels Arriving.	Total Vessels with Cargoes.	In Ballast.
1845 - - - - -	13	—			
1846 - - - - -	6	—			
1847 - - - - -	37	—			
1848 - - - - -	not known.	—			
1849 - - - - -	32	- - -	44	36	8
1850 - - - - -	101	6	152	129	23
1851 - - - - -	189	15	335	258	77
1852 - - - - -	355	42	691	468	223
1853 - - - - -	386	68	844	554	290
1854 - - - - -	500	129	1,032	767	265
1855 - - - - -	526	106	1,118	868	235
1856 - - - - -	682	86	1,114	1,002	112

1804. Can you inform the Committee when the railway was finished which ends at Harburg?—No, I cannot tell.

1805. Do you know whether it was in 1854 or 1855?—I do not know that.

1806. *Chairman.*] Can you give the Committee any information as to the difference of railway charge from Hamburg and Harburg to the various places with which they compete?—In answer to that, I may state that the inference deducible from the statements which I have seen given with regard to Harburg, is to the effect that the rise of the port is entirely ascribable to its exemption from Stade toll; but there seems to me to be a combination of circumstances leading to that result, each of far more importance than the Stade toll itself. The railway to Saxony and central Germany comes close to the quays, so that the goods can be raised by cranes out of the vessel and placed directly in the waggons, in which they are carried at once by Brunswick and Magdeburg to Leipsic and Dresden, thus effecting a considerable saving both of time, labour, warehouse rent, and other charges. But a most important fact is given in a report made by the British Vice-Consul at Harburg in 1855; he says, “that the railway freight from Harburg to all places in Germany situate to the west of the Elbe is about 2*d.* sterling per hundredweight lower than the freight from Hamburg to the same places by the Berlin and Hamburg Railway; besides this, the lower charges of the Harburg merchants contribute much to bring trade to the port; trade always chooses the cheapest routes;” and the consul adds, that he believes that the traffic of Harburg will go on increasing.

1807. Does the consul state any other advantages at Harburg which are likely to divert the trade there besides the Stade dues?—He enumerates several; he says: “Even in the forwarding of goods up the river Elbe, Harburg has a great advantage over Hamburg, as all goods going up the river from Harburg to Magdeburg, Dresden, and Halle, can pass the Wittenberg office for collecting the Zollverein duty, while all river boats coming from Hamburg, a city not in the Zollverein, must undergo an examination, and they are often detained for a week, and even longer if there are a great many boats going up the river. You will perceive (he says) by the above-mentioned circumstances, that the exemption from the Stade toll, if it even at first attracted the mercantile world more to the little port of Harburg, is far from the sole cause of the increase of the trade, and that other advantages beside add to this increase; and it is worthy of remark, that most goods that have hitherto come to Harburg from beyond sea are



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such as pay the lowest rates of the Stade toll, iron, coal, copper, cotton, &c." After enumerating which, he says, "while other goods, such as yarns, cloth, and hardware, which pay a higher rate still, go to Hamburgh." "But (he adds) very soon manufactured goods will also come to Harburg, as there is a line of steamers to run from Hull to Harburg, which increase of the trade of Harburg will be of advantage to England."

1808. Mr. Villiers.] Who is the vice-consul; is he is an Englishman?—No; he is a German.

1809. *Chairman.*] Is that delay which is there mentioned, of a week at the Wittenberg office, in your judgment, more or less inconvenient than the stoppage to which vessels are subject to pay the Stade toll?—Of course it must be more inconvenient; but the detention by the Stade toll, however small, is inevitable and uniform, whereas this would appear to be exceptional. The vice-consul does not profess there to state that there is always a delay of a week.

1810. But the goods going to the Upper Elbe have to stop, and are often delayed a week at the Wittenberg office?—He says, "Often detained for a week, and even longer."

1811. Mr. Villiers.] The vice-consul is a Hanoverian subject, is not he?—I presume so. Hanover has also recently given a further encouragement to sending goods by Harburg. Formerly a vessel only escaped the Stade dues by clearing for Harburg direct and alone, but by an order of the Hanoverian Government, published in May 1855, this privilege, granted to Harburg, has been extended further. By this order it is enacted, "That even when the whole of the cargo of a vessel arriving at Harburg is not landed at Harburg, or when a part of such cargo has been already landed at Harburg or Altona, the remainder of such cargo, if landed at Harburg, shall be free from the Stade toll." Opposite that small gain, must be set the fact that English shipowners are losers from the circumstance that Harburg affords no return freight, and the British vessel, having discharged at Harburg, is forced to return to Hamburgh to reload, thus incurring double expenses and double port dues as well as loss of time.

1812. Is it the vice-consul who says that about the double port dues?—No, that is my own observation.

1813. Do they pay port dues at Hamburgh?—Yes, ships pay port dues at Hamburgh. From this it will be seen that the mere exemption of Harburg from the toll, would not be sufficient of itself to influence the prosperity of the port one way or the other; that so far from being prejudicial to British trade, its influence, so far as it extends, is favourable, since it creates no partial facilities in favour of any one country from which we are excluded from participating. In this respect, the freedom of Harburg from the toll contrasts favourably, as regards British trade, with the exemption of Hamburgh citizens, their ships, and cargoes; the exemption at the one place being alike to all, whilst the other fosters a direct and unequal competition with the commerce and shipping of the United Kingdom, both in the direct and indirect trade.

*Martis, 6<sup>e</sup> die Julii, 1858.*

## MEMBERS PRESENT:

Mr. Bowyer.  
Mr. Fenwick.  
Mr. Seymour Fitzgerald.  
Sir James Graham.

Mr. Henley.  
Mr. Ricardo.  
Mr. Villiers.

THE RIGHT HON. JOSEPH WARNER HENLEY, IN THE CHAIR.

Sir *J. Emerson Tennent*, further Examined.

1814. *Chairman.*] CAN you give the Committee any information as to the coal trade between Hamburg and this country between the years 1855, 1856, and 1857, as to its increase or decrease?—Having observed that one of the previous witnesses, Mr. Saunders, had stated it as his opinion, in No. 968 of the Evidence, that the coal trade of Hamburg decreased in 1856 and 1857, I have looked to the facts, and I do not find that that is consistent with our returns. The arrival of coal vessels from Great Britain to Hamburg in 1855, were 1,113, carrying 267,174 tons; and in 1856, 1,162, carrying 271,786 tons; in 1857 there were 1,202, that carried 303,147 tons. To the Hanse Towns in general we exported 416,546 tons; in 1855, 463,614 tons; in 1856 and in 1857 we exported 498,289 tons. Those are the exports to Hamburg and to the Hanse Towns. But during the same period we exported to Harburg, in 1855, 42,835 tons; in 1856, 53,143 tons; and in 1857, 68,540 tons. So that, notwithstanding the heavy pressure of the Stade toll upon coal, the rate of exports from this country does not seem to have declined in consequence.

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1815. Do you know whether the trade of Bremen has increased or not?—The trade of Bremen has considerably increased of late years.

1816. Do you know what the cause of that has been?—One obvious cause is the opening of railroads towards central Germany from Bremen; and coupled with that has been the total abolition of the Elsfleth toll on the Lower Weser; and likewise the suspension of all tolls upon the Upper Weser, so far as the river is navigable.

1817. Was that toll upon the Lower Weser analogous to the Stade toll?—In almost every particular. That is another portion of my evidence, which will come in more appropriately presently.

1818. At whose cost was the toll upon the Weser bought off?—At the cost of the German States, and principally of the Hanse Towns, especially Lubeck.

1819. Do you know at all what the amount of that toll was per annum?—No, the compensation was territorial; an extension of territory was given to the Duke of Oldenburg.

1820. Mr. *Villiers.*] How could that have been given by the different states?—They ceded a portion of their own territory.

1821. What were the states?—Lubeck was the principal one; but the details of all that will be found in the *procès verbal* of the Congress of Vienna in 1815.

1822. Do you know what the principle of the compensation was?—I only know that it was territorial; but as to the amount of the compensation, I cannot tell.

1823. *Chairman.*] How has Hamburg been affected by the abolition of the Sound dues?—The impression at Hamburg appears to be, that the abolition of the Sound dues has contributed to send a large portion of the trade to Stettin, which otherwise would have gone to Hamburg; but on looking at the trade

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returns of Stettin, I find that the increase of imports to Stettin, and of the shipping resorting to it, began considerably before the Sound dues were abolished. The Sound dues were not abolished till 1856, but a singular increase had taken place in the trade of Stettin prior to that. I find that in 1852, the total value of exports from Great Britain to Stettin was 783,025 *l.*; but in 1856, before the Sound dues were abolished, it had risen to upwards of 1,250,000 *l.*; 1,298,438 *l.*

1824. *Mr. Villiers.*] Have you any further particulars as to what other countries exported to Stettin?—No; those are the exports from Great Britain alone.

1825. *Mr. Ricardo.*] What has it been since that time?—I have not got the returns for 1857.

1826. Do you know whether the proportion of increase has been as great since the abolition of the Sound dues, as it was at the period you have mentioned?—Not having yet received the returns from Stettin, I can only speak speculatively with respect to that, but I presume they would be greater.

1827. *Chairman.*] Do you believe that if the Stade dues were taken away, the increase of trade would go back to Hamburg?—I do not believe it would; and for this reason, that it is not the difference of the Stade toll that suffices to give a preference to Stettin. A former witness has put before the Committee a circular of a house at Hamburg, calling attention to the dangerous competition in freights which now exists between Hamburg and Stettin; and he shows that on a bale of cotton goods, of 10 cwt., the difference, if sent by Stettin to Berlin, would be 3 *s.* 7 *d.* less than what it would be if sent by Hamburg to Berlin; but in that 3 *s.* 7 *d.* I find that only 1 *s.* is Stade toll, so that if the Stade toll were abolished, Stettin would still have a preference to the extent of 2 *s.* 7 *d.* on 10 cwt.

1828. *Mr. Ricardo.*] Is not a part of that extra expenditure occasioned by the Stade dues, without being actually the toll itself; does not he reckon the cost of the delay in his calculation?—I only take the account as he gives it, in which he puts down a certain figure for the whole amount, so far as the Stade toll is involved in his calculation; but I do not presume that the delay enters into it. The delay would be a consideration additional.

1829. The delay is in addition to the freight?—Delay, where it exists; but I believe the delay is minimised.

1830. I believe it was made out by that witness that there was a considerable delay, which he put into figures. He reckoned the money value of the delay, and the inconvenience, adding that to the Stade toll, and he made that the difference in the cost of transit to those two places?—That I did not see.

1831. *Chairman.*] What effect have the tolls, in the Upper Elbe, upon the trade of Hamburg now?—Infinitely greater than the Stade toll can have upon the Lower Elbe. I believe the tolls upon the Upper Elbe amount to close upon cent. per cent. upon the freight. The Stade toll will be something between 10 and 15 per cent. upon the freight, and for that reason I am disposed to believe that the relief of Hamburg would scarcely be appreciable in the abolition of the Stade toll, if simultaneously the tolls upon the Upper Elbe were not abolished, and likewise the transit dues upon the railways.

1832. Have the railways recently made in Germany, in your opinion, had anything to do with the diversion of the trade from Hamburg?—They must have had considerably. The railway that has been made from Tönnning to Flensburg across Schleswig, which by that route connects the German Ocean with the Baltic, must more or less interfere with the trade that formerly went by Hamburg. In addition to that, on the northern bank of the Elbe there has recently been constructed a railway from Glückstadt to Hamburg, which necessarily competes for the trade of the river, and on the south of the Elbe there is a system of railways which communicate with Saxony and Central Germany, and all those afford means of conveyance which must seriously have interfered with the former carrying trade of Hamburg.

1833. *Mr. Ricardo.*] On the other hand, is there not a railway from Altona to Keil which would for the same reason have increased the trade to Hamburg, or rather the transit trade passing to the north of Europe through Hamburg?—Not if that trade took its terminus at Altona instead of going to Hamburg.

1834. Would it go to Hamburg, and from Hamburg to Altona?—No; I should think it would go direct to Altona.

1835. *Chairman.*] Where, in your opinion, did the present movement against these

these Stade tolls commence?—I should think it must have originated at Ham- *Sir J. E. Tennent.*  
 burg.

1836. Have you any reasons to give for that opinion?—Hamburg must necessarily have been rendered uneasy by the growing trade of Harburg, which is within seven miles of her. Hamburg cannot see without jealousy a new port receiving annually 1,000 laden ships, of which it is supposed that a portion, at least, might have gone to her. And I have no doubt it is the rising trade of Harburg that has contributed to the present agitation at Hamburg to get rid of the Stade toll.

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1837. In your opinion which is most affected, the trade of Great Britain or the trade of Hamburg by the Stade tolls?—The trade of Hamburg.

1838. What, in your opinion, is the real ground on which Great Britain has most cause of complaint as to the Stade toll?—I think from our inability to show the direct influence of the Stade toll in any diminution of our trade, what we have most to complain of is the disquieting of that trade by the inequalities and exemptions of the Stade tolls. The people of Hamburg are uneasy at seeing the exemptions of Harburg; the exemption of Hamburg itself creates uneasiness at Hull, and at London a combination of those causes serves to excite unreal alarms or exaggerated apprehensions, and possibly to divert the trade from the direct channel of Hamburg into others, which may not be so advantageous to the commerce of this country.

1839. *Mr. Villiers.*] Is not that quite enough to affect the trade between Hull and Hamburg; does not that disquiet to which you refer result in lowering the freights; they have to compete, have they not, with Hamburg vessels?—Only in that portion of the trade which is on account of Hamburg citizens.

1840. But that is what you say occasions disquietude among our shipowners?—Clearly.

1841. Are they not, in order to maintain that competition, obliged to lower their freights?—In carrying those articles in which a Hamburg ship has an exemption, of course an English ship, in order to compete with them, must necessarily lower her freight.

1842. Have you heard what we have been told before this Committee, that there is a Hamburg company now advertising to carry merchandise without paying Stade tolls?—Yes; but I think that that statement has scarcely been put with sufficient simplicity before the Committee, because as it reads in the evidence it would appear that a Hamburg vessel can advertise to carry her entire cargo exempt from Stade toll, whereas in reality that can only apply to goods shipped on account of Hamburg citizens; but goods meant for transit through Hamburg, though carried in a Hamburg ship, are equally subject to the Stade tolls as goods carried in an English ship.

1843. But it advertises exemption from Stade toll?—Yes; but the exemption from Stade toll does not extend to the whole cargo in ordinary cases.

1844. The exemption is upon certain conditions, and there could be no exemption if those conditions were not complied with?—Just so.

1845. But what they advertise to their customers is exemption from those tolls altogether?—Yes, and that is delusive.

1846. The Hull steamers or other vessels must do something to maintain their ground, they must either lower their freight or lose the trade; the Stade toll must not enter into the charge?—They must lower their freight.

1847. *Sir James Graham.*] What they advertise is more than they can fulfil?—So it appears to me.

1848. Is that notorious?—I am apprehensive that it is not; on reading the evidence it would appear as if the advertisement applied to the whole of the cargo.

1849. But practically that is not so?—Practically that is not so; it can only apply to a portion of that cargo, which is the property of Hamburg citizens.

1850. And when they arrive at Stade an investigation takes place with respect to the cargo of what is consigned to Hamburg citizens, and what is consigned for transportation through Hamburg?—It must be so; the latter paying and the other being exempt.

1851. The flag does not give the exemption, it must be a Hamburg bottom, must it not?—It must not only be a Hamburg bottom, but the property of Hamburg citizens.

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1852. Mr. Ricardo.] Is it the case that a vessel owned entirely by Hamburg citizens is exempt, in respect of her cargo, from Stade tolls?—No; she would be exempt only in relation to so much of her cargo as is the property of a Hamburg citizen, but the remainder of the cargo which is only in transit to other parts of Germany has no privilege.

1853. But the cargo is very easily consigned to a Hamburg citizen, I suppose?—Yes, but it must be his *bona fide* property, and a declaration to that effect must be made at the Stade toll office at Hamburg in order to claim the exemption.

1854. Then goods carried by a Hamburg vessel, owned by Hamburg citizens, and consigned to a Hamburg citizen, are not exempt from the toll necessarily?—Not if they are in transit only.

1855. They are exempt if they are the property of the Hamburg citizen to whom they are consigned?—They are.

1856. But they are not exempt if they are not his *bona fide* property?—Quite so.

1857. Chairman.] Do you know whether the trade with Hamburg has fallen off in consequence of the Stade toll?—So far from that being the case, the tonnage belonging to the Port of Hamburg seems to have trebled in amount within the last ten years; the tonnage, both native and foreign, entering and clearing from Hamburg, has doubled within the same period. In 1846 the tonnage that entered Hamburg was 186,021 tons; in 1856 it was 390,908; then the tonnage that cleared from Hamburg in 1846 was 186,545 tons, and in 1856 it was 387,308. I shall put in a table exhibiting those results, and likewise the value of the imports. In 1846 the value of the imports was 21,124,929 *l.*; in 1856 they were 49,115,406 *l.* (*The Witness delivered in the Tables.*)

Vide Appendix.

1858. Sir James Graham.] Consisting of what?—Of goods of all kinds imported into Hamburg.

1859. Being of that value in pounds sterling?—Yes.

1860. Chairman.] Of that large amount of increase the greater proportion I suppose must have been in transit, and not the property of Hamburg citizens?—Clearly; then the exports, I find, from Hamburg, which may possibly represent the transit, would be, in 1846, 20,729,405 *l.*, and in 1856, 46,007,529 *l.*; the great bulk of the Hamburg trade is transit.

1861. It is quite clear, therefore, that the Stade toll could not have had a very heavy effect of stopping the trade of Hamburg in those 10 years?—No; the effect, though admitted, is not demonstrable by figures statistically.

1862. Mr. Fenwick.] Will you explain what you mean exactly by the words "goods in transit." Let me put a case; suppose a Hamburg merchant orders a thousand tons of coals from a north country coalowner, with a view, when they come to Hamburg, of afterwards sending them on to Berlin or to Magdeburg, do you consider that a case of goods in transit?—I have been given to understand that, if goods are purchased by a Hamburg merchant with a view to a future speculation, they are his own property, and as such entitled to exemption; but, if they are purchased in pursuance of an order from a further destination to which there is an arrangement previously made to send them, then, although they are nominally his property, they would be considered as in transit, and could not claim the exemption.

1863. Do you know what is the ordinary course of trade in Hamburg, whether they are generally imported with the view of completing a contract already entered into, or with the hope of making a future contract for their disposal?—I believe that in a large proportion they are in completion of contracts already entered into.

1864. Does that answer apply to such cases as sugar from the Brazils, or coffee from the Brazils?—If destined for the Zollverein or the adjacent country of Germany, it must be so; but, looking to the mere extent of Hamburg itself, with a population of only 150,000, and seeing that these imports every year are close upon 50,000,000 *l.* sterling, it must be obvious that by far the larger proportion must be intended for transit, and not for home consumption.

1865. But what I want to know exactly is what you mean by the words "in transit;" do you mean a specific bargain with some specific person to deliver so many goods to him, or do you mean simply an intention to transmit to a certain market, certain goods?—I apprehend that the word "transit," in the present discussion, as regards the Stade toll, must be taken with a very local signification, which is understood between merchants and the Stade toll officers at Hamburg.

I do not conceive that our words *in transitu* would precisely bear the same construction as applies to it there. Sir J. E. Tennent.

1866. Our words *in transitu* only apply to goods in passage in this country ; but I am supposing the case of a Hamburg merchant whose ordinary course of trade is to import, say sugar, with the intention of, after having brought it, sending it to different markets in Germany, would that be goods "in transit" in the way in which you use the words?—According to the explanation which I have received, and which I have already given to the Committee, I believe such goods as you have described would be free of Stade toll. 6 July 1858.

1867. I think I understand you to say that that is the general nature of the goods so imported into Hamburg, and which go in transit?—Pardon me; I have stated that the general destiny of goods entered to Hamburg is in transit, but I am not able to state to you of how large a proportion the importer already discerns the destination, or how large a proportion he buys on speculation, waiting for an opportunity of transmitting them.

1868. Mr. *Bowyer*.] Who makes the declaration as to the goods when they are imported?—The importer.

1869. Mr. *Fenwick*.] In the case of those goods which are free from the Stade toll being in transit in that modified way, does not the Stade toll in that case operate as a differential due against our shipping?—Obviously.

1870. I think I understand you to say that you do not know what proportion of the trade is of that strictly transit description, and what proportion is in that modified form?—No.

1871. From your own experience and knowledge of the way in which merchants do their business, are you aware whether it is or not done in the way in which I put it to you, namely, that they import with a view of getting some market somewhere else, and not for the purpose of completing some contract already entered into?—I think the analogy of such transactions in this country would scarcely apply with accuracy to similar transactions in Hamburg, where the main occupation of the whole people is forwarding goods intended for consumption elsewhere.

1872. Take the case of the consumer of produce at Berlin, do you think that the merchant at Hamburg, with whom he deals, never imports the goods into Hamburg until he has received an order from the Berlin merchant?—I am unable to give any satisfactory information upon that point to the Committee, from the fact which I stated during my examination on the previous day, that I have failed to get any information from Hamburg as to the precise proportion of imports which were free of dues, and the proportion which paid them. In the absence of information of that kind obtained from Hamburg, any opinion must be speculative.

1873. Is it not manifest that goods imported from a distance, such as sugar from Brazil, must be imported on the speculation of the Hamburg merchant, and not in consequence of any previous order from the consumer at Berlin?—I should say that a large proportion of them must be in consequence of the previous experience of the merchant, as to the quarter to which he will be enabled to send them on landing.

1874. And not for the purpose of completing a contract already entered into?—Perhaps not to complete a precise contract entered into, but in the ordinary recurrence of trade, the extent of which previous experience has taught him to calculate upon.

1875. And that species of trade would be free from the Stade toll?—That depends upon the ability of the importer, under the circumstances I have already explained, to make a declaration at the Stade Toll Office, at Hamburg, that the goods were not in transit.

1876. But, as I understand, he would be able, under those circumstances, to make that declaration?—So I understand.

1877. Mr. *Ricardo*.] There is every facility, is there not, in most of those transactions, for making such a declaration?—I am unable from personal experience, or from documentary information, to speak of the practice at Hamburg, but I should think, if fraud were contemplated, facilities would exist for the attempts.

1878. Mr. *Bowyer*.] It would depend very much upon a man's conscience whether he could make a declaration or not, I suppose?—To a certain extent, I suppose it must.

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1879. Mr.

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1879. Mr. Villiers.] There is no reference to the ultimate destination of the goods imported when he makes the declaration; he is not bound to say whether they are for his own consumption or for consumption in Hamburg, or for further export; is not that so?—That I am unable to answer.

1880. Chairman.] You have been asked some questions as to the probable quantity of goods which may have been in transit or otherwise, and you have stated certain figures showing that in a given period of years the money value of the imports to Hamburg has nearly doubled?—More than doubled.

1881. Can you give the figures of the amount of Stade toll during that period?—I put in a return in my evidence on the former day which exhibited that.

1882. Can you tell us what the Stade toll was in 1846, and what it was in 1856 or 1857?—In 1846 the net Stade toll received by Hanover was 17,888*l.*, and in 1855 it was 31,029*l.*

1883. Do you know what it was in 1856?—No, we have not got the return for 1856.

1884. Mr. Villiers.] In looking to your own return, I see that you take the lowest year, do not you, to compare with the increase at a subsequent period. I see that it is the lowest year that there is; all the rest are higher; it has been as high as 47,000*l.*?—I believe it has.

1885. Chairman.] Therefore those figures afford a pretty correct means of measuring how much of that trade belongs to Hamburg citizens, and how much is otherwise?—They do.

1886. That would be a safer mode of judging than any speculation as to what probably might be the course of such trade?—It would.

1887. That figure must be, as compared with the actual imports to Hamburg, a pretty accurate test of how much belonged to Hamburg citizens actually, and how much went to other destinations?—Yes; it would be so.

1888. You have been asked questions with regard to the trade of Bremen; have you any Tables which you can put in showing that clearly?—Yes. I will put them in.

[The Witness delivered in the same, which are as follows:]

TONNAGE of BRITISH VESSELS Entered and Cleared at the Port of Bremen, in each Year, from 1851 to 1856.

YEARS.					ENTERED (with Cargoes only).	CLEARED (with Cargoes only).
					<i>Lasts of 2 Tons.</i>	<i>Lasts of 2 Tons.</i>
1851	-	-	-	-	14,158	10,112
1852	-	-	-	-	13,906	17,352
1853	-	-	-	-	16,320	10,019
1854	-	-	-	-	17,821	12,843
1855	-	-	-	-	24,282	14,681
1856	-	-	-	-	31,318	16,404

TOTAL TONNAGE, under all Flags (with Cargoes and in Ballast), Entered and Cleared at the Port of *Bremen* from and to *Great Britain*, in each Year, from 1851 to 1856.

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YEARS.					ENTERED.	CLEARED.
					<i>Lasts of 2 Tons.</i>	<i>Lasts of 2 Tons.</i>
1851	-	-	-	-	34,400	29,239
1852	-	-	-	-	44,514	33,137
1853	-	-	-	-	54,935	34,841
1854	-	-	-	-	55,269	39,784
1855	-	-	-	-	48,369	57,424
1856	-	-	-	-	55,090	67,608

VALUE of IMPORTS and EXPORTS into the Port of *Bremen* from and to *Great Britain*, in each Year, from 1851 to 1856.

YEARS.				IMPORTS.		EXPORTS.	
				<i>Rix Dollars.</i>	<i>£.</i>	<i>Rix Dollars.</i>	<i>£.</i>
1851	-	-	-	2,080,842	346,807	336,633	56,105
1852	-	-	-	2,524,946	420,824	757,540	126,256
1853	-	-	-	2,800,970	466,828	903,198	150,533
1854	-	-	-	3,206,330	534,388	1,444,507	240,751
1855	-	-	-	3,462,303	577,050	1,127,174	187,862
1856	-	-	-	4,445,586	740,931	892,194	148,699

1889. Mr. *Fitzgerald*.] I understand you, that in the year 1846, the imports into Hamburg were about 21,000,000*l.*, and that they paid about 21,000*l.*; and in the year 1856, the imports were 49,000,000*l.*, and that they only paid 31,000*l.*; can you give me the amount of imports in the years 1854 and 1855 into Hamburg?—The imports, in 1854, into Hamburg were 39,800,000*l.*

1890. So that the account stands, that in the year 1846, the imports were 21,000,000*l.*, and they paid 21,000*l.*; and that in the years 1854 and 1855, the imports were 39,000,000*l.*, and they paid 31,000*l.*; does not that show that the privileged trade, that is, the trade that was exempt, as being carried on in Hamburg bottoms, the merchandise being the property of Hamburg citizens, was the one that had more largely increased in that period, is not that so?—That does not necessarily follow. Provided the nature of the goods imported in each year was the same, your conclusion would be right; but the nature of the goods imported fluctuates from year to year. In one year there may be a larger import of these articles which pay a larger amount of Stade toll, than in another.

1891. Mr. *Fenwick*.] Have you any return of the value of the imports during those respective years?—I have been giving their values.

1892. Mr. *Ricardo*.] Have you any return of the amount paid for Stade toll by Great Britain in each year?—I put that in on the former occasion.

1893. Can you tell me what the amount paid by Great Britain was in 1846?—£.12,620; what I am now giving you is the amount of Stade toll paid on cargoes from Great Britain, under every flag.

1894. What was it in 1856?—I cannot give it you for 1856.

1895. What was it in 1855?—In 1855 it was £. 22,383.

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1896. Therefore



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1896. Therefore that proves your view to be quite correct, that the figures to which allusion has been made do not show an increase in the importation of exempted goods, inasmuch as upon 6,000,000 *l.* there was 12,000 *l.* paid from Great Britain, and upon 12,000,000 *l.* there was 22,000 *l.* paid?—Yes.

1897. *Chairman.*] Can you give the Committee any information as to the relative cost of conveyance from Stettin to Berlin, and from Hamburg to Berlin?—I adverted to that in my answer on a previous occasion to-day. I stated that there was 3 *s.* 7 *d.* difference on a bale of cotton weighing about 10 cwt., and if sent *via* Hamburg, 1 *s.* of that goes to the Stade toll.

1898. Mr. *Fitzgerald.*] I thought that referred to the freight from London?—The freight from London to Hamburg, and from London to Stettin are, I believe, the same, or nearly so.

1899. You say that there is a difference of 3 *s.* 7 *d.*; how do you say that 1 *s.* of that goes to the Stade toll, when you are referring now to the cost of transit between Hamburg and Berlin in the one case, and Stettin and Berlin in the other?—Because the goods before they were shipped on the Upper Elbe at Hamburg to be conveyed to Berlin must have paid Stade toll on the Lower Elbe, whereas at Stettin, when they are either shipped on the Oder or forwarded by the railway, they pay no Stade toll.

1900. Mr. *Ricardo.*] The comparison was not upon goods taking their departure from Hamburg or from Stettin, but starting from Great Britain to go through Hamburg, or Stettin to Berlin; is that so?—The comparison is this: that the freight from London to Stettin, and the freight from London to Hamburg are nearly the same, say 3 *d.* per foot, and a primage of 25 per cent., but before the goods can be forwarded from those respective destinations to Berlin, the Stade toll must be paid at Hamburg to the extent of 1 *s.* on the articles I have mentioned, whereas Stade toll does not exist at Stettin.

1901. Mr. *Fitzgerald.*] Still the 1 *s.* you speak of is a charge as between London and Hamburg, and not as between Hamburg and Berlin?—The gross charge is between London and Berlin in both cases.

1902. *Chairman.*] The charge from Hamburg to Berlin upon the railway, upon the article you have stated of cotton twist, is 3 *s.* 7 *d.* higher, is it not?—It is 3 *s.* 7 *d.* higher.

1903. And then, if you deduct the 1 *s.* which is charged for Stade toll, that leaves the charge higher 2 *s.* 7 *d.*?—Yes.

1904. Mr. *Fenwick.*] That is upon the supposition that the freight from London to Stettin is the same as the freight from London to Hamburg, minus the Stade toll?—Irrespective of the Stade toll; it is so stated in the circular which has been put in to the Committee.

1905. Suppose that the statement which has already been made is correct; that the freight to Stettin is 3 *s.* higher than it is to Hamburg, would not the 1 *s.* on the Stade dues, in that case, make a much more important difference than it does, according to your idea of the freight?—If the freight were 3 *s.* higher to Stettin, and the carriage from Stettin to Berlin 3 *s.* 7 *d.* lower, that would still leave a difference of 7 *d.*; and then if the 1 *s.* for Stade toll on the other side was taken out, it would turn the balance in favour of Hamburg by 5 *d.*

1906. *Chairman.*] It all depends upon the freight?—Yes; it depends upon the equality of freight by sea, and the inequality of the inland carriage.

1907. To go to another branch of the subject: have you seen Mr. Ward's evidence, in which he states that he thinks Hanover is entitled to compensation for the Stade toll?—I have seen the portion of Mr. Ward's evidence to which you refer.

1908. Do you agree with him in the opinion which he gave there?—Mr. Ward has stated that he always felt that Hanover had some title; that she was entitled to collect some toll, and to receive some compensation; but I confess that the examination which I have given to that portion of the subject leaves the question with me extremely doubtful as to whether Hanover is entitled to any compensation.

1909. Have you given any consideration to the subject, assuming that she is entitled to anything, who ought to pay it?—I have, and that seems to me to be involved in still greater obscurity; I can see very distinctly that Hamburg and the surrounding German States are directly interested in the abolition of the Stade toll, inasmuch as it raises the cost of articles consumed by them. But the interest which England has in the abolition is indirect, and therefore, to a great extent,

extent, this complicates the question of the proportions in which this country and other countries ought to pay in the event of the abolition being effected by means of an indemnity.

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1910. Do you think that the question of the Elsfleth toll on the Weser bears at all upon that question as a precedent?—The Weser toll seems to me in every particular to afford a singular parallel to the toll upon the Elbe; and it would almost appear as if the Weser toll had been constructed by the Counts of Oldenburg in the 16th century, in imitation of the Stade toll. The Stade toll professed to be collected upon the estuary of the Elbe; and in the same manner the Elsfleth toll was collected on the estuary of the Weser, the river being divided into two sections; one, the estuary or Lower Weser, and the other, the upper river. The Stade toll was collected on goods ascending the lower river and coming exclusively from the sea; and so was the Weser toll. The one was collected at Stade, a considerable distance from the sea, and the other was collected at Elsfleth, a considerable distance from the sea; the one was protested against by Hamburg, the town chiefly interested in the trade of the Elbe, and the other was protested against by Bremen, the town chiefly interested in the trade of the Weser. In precisely the same manner as Hamburg has always charged herself with maintaining the navigation of the Lower Elbe, so Bremen charged herself with maintaining the navigation of the Lower Weser. There is this important difference between them, that Hanover, down to a very recent period, never had any international sanction for the Stade toll; but the Dukes of Oldenburg had the sanction of the treaty of Westphalia for the Weser toll, so that their title, in that particular, to the Weser toll was superior to the title of Hanover to the Elbe toll. But about the year 1803, the neighbouring States of Germany, including Bremen, felt the inconvenience of the toll which interfered with their trade, and raised the price of the articles imported by the river; and in a conference which was held at Ratisbon in the year 1803, with a view to the reconstruction of the German Empire, it was agreed that the Weser toll should be purchased up from the Duke of Oldenburg, and that a territorial consideration should be given in exchange for it. The war broke out afresh immediately after, and that agreement, though entered into, was never perfected by the Duke of Oldenburg till the matter was again brought before the Congress of Vienna in 1815, and under the influence of that Congress the toll was finally abolished in 1819 or 1820, the Duke of Oldenburg accepting the terms which had been offered him in 1803. Although English shipping at that time frequented the Weser, just as British shipping now frequents the Elbe, England was not called upon to pay any portion of the indemnity to Oldenburg; but the German States considered it as entirely and exclusively a matter affecting themselves, and made good the compensation without any foreign contributions towards it. Now, in the same manner, I should be disposed to consider that if the Stade toll is to be purchased up, it is the interest of Hamburg and the Elbe-bordering states to purchase it, as it was the interest of Bremen and the states bordering on the Weser to purchase the other, and that the German states which consume the articles upon which that toll is levied, are more directly interested in contributing towards the indemnity for it than we who are merely exporters.

1911. Do you know anything of the tolls upon the Upper Elbe, and the movement which is now on foot to procure their extinction?—The tolls upon the Upper Elbe, as I have already stated, are one of the most serious grievances with which Hamburg at the present moment has to contend; they amount, I think, to about 120,000 *l.* a year. At the present moment, Hamburg is making a vigorous effort either to obtain a reduction of those tolls, or failing that, to effect their abolition; but I do not find that Hamburg, in the case of the Upper Elbe tolls, contemplates any contribution towards that object from foreign states; they look upon that question as one entirely affecting German interests, and that the emancipation is to be effected by German means alone.

1912. Sir James Graham.] You have traced very clearly the analogy between the sea toll of the Lower Elbe at Stade, and the sea toll of the Lower Weser before it was bought up; does the toll of the Upper Weser still subsist as the toll of the Upper Elbe subsists?—No; the toll upon the Upper Weser was subordinated to the jurisdiction created by the Congress of Vienna, and the Riverain States interested in it made a regulation for its imposition and collection; precisely the same thing took place with regard to the tolls upon the Upper Elbe, but there the parallel ceases, for within the last year or two, the tolls on the Upper Weser were

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found so materially to interfere with the traffic of the river in its competition with the railways, that they have been entirely suspended, and no toll now exists on the Weser, either Lower or Upper.

1913. Was the suspension, or rather the annihilation of the tolls upon the Upper Weser, effected by pecuniary compensation for their cessation?—I apprehend not; I believe it was a voluntary surrender on the part of the states entitled to receive the toll.

1914. The effect of the railway competition on the banks of the Weser has produced the extinction of the Upper Weser tolls without compensation?—It has effected a suspension, which is equivalent, I believe, to an abolition; as it is unlikely that they will ever again be able to reimpose them.

1915. Then German interests have effected the termination without any foreign aid?—They have.

1916. Do any similar causes for an early suspension exist with respect to the tolls of the Upper Elbe?—Clearly; the commerce of the Upper Elbe is as much threatened by the competition of the railways as was the commerce of the Upper Weser, so much so, that within the last five years, whilst the trade of Hamburg by the Upper Elbe has increased but 15 per cent., the traffic by the railroads from Hamburg has increased 150 per cent. I believe that the transit dues on the railway on the north bank of the Elbe have been mainly imposed with a view to sustain the traffic of the river, and that they amount to 25,000 £ a year. If those transit dues on the railway were abolished, it is quite clear that the tolls upon the Upper Elbe could not possibly be maintained.

1917. Then similar causes producing the same effect, you would be disposed to infer that German interests without foreign aid will in the Elbe, as in the Weser, extinguish both the sea and the river tolls?—The sea toll stands on so entirely a different foundation, and by so entirely a distinct title from the Upper Elbe toll, that they cannot properly be coupled in the same category, nor are they subject to the same influences; but the extinction of the toll upon the Upper Weser has been effected by precisely the same means as we could hope may eventually effect the extinction of the toll on the Upper Elbe.

1918. If the tolls upon the Upper Elbe be extinguished by German interests as being the greater evil, the sea toll at Stade on the Lower Elbe being the lesser, may it not be expected that German interests will lead to its extinction also?—Should the Upper Elbe toll be extinguished by German interposition, I believe the same influence may be equally exerted to procure the abolition of the Stade toll upon the Lower Elbe.

1919. In your opinion, it is a question of time and patience; but that without British money being paid, German interests will eventually extinguish both?—That is so much more a matter of speculation than of calculation that I cannot give a distinct answer.

1920. Mr. Fitzgerald.] You said that there was one great point of difference between the toll on the Lower Weser and the Stade toll; that the Elsfleth toll was sanctioned by the Treaty of Westphalia, and that the Stade toll was not; on what do you found that opinion?—I can scarcely refer you to my authority at the present moment; but it is from official documents that I speak, and the distinction which dwells in my mind is this, that by the Treaty of Westphalia, a distinct authority was given to the Dukes of Oldenburg on behalf of Germany generally, to collect that toll; whereas, by the Treaty of Westphalia, as far as I recollect, nothing further was given than a notice that the Stade toll existed upon the Elbe. In that I may be mistaken; I am speaking now rather from memory and general impression than from distinct authority.

1921. Mr. Bowyer.] Do you mean a notice incorporated in the treaty?—I mean a sanction to the Elsfleth toll embodied in the Treaty of Westphalia.

1922. Mr. Fitzgerald.] The Treaty of Westphalia sanctions the continued levy of all those duties that are imposed by a grant from the Emperor and assented to by all the Electors; we have had that established before?—Then that would not apply to the case of the water toll, so far as I remember the facts.

1923. Have you at all seen the evidence which has been given to us by Professor Wurm upon this special point?—I have.

1924. I observe that the question is asked him, "Is the Stade toll such as is there described, a toll granted by the Emperor, and assented to by the Electors? As I stated, the Emperor gave the grant at a time when his prerogative was in full force; his prerogative enabled him single handed, without the assent of any of

of the Electors, or of anyone, whoever he might be, to give such a grant." And then there is a question put to him by Mr. Villiers: "I wish to ask whether the Stade dues do not come under that class of duties which were, according to your evidence, legal?" and another question: "But the dues, as to levying, were confirmed by the Westphalian treaty?" and the reply is, "Yes, no doubt the levy is so far confirmed by the Westphalian treaty, that the Imperial grant could not be interfered with; that is quite clear"—I cannot lay my hand at this moment upon the authority from which I speak.

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1925. You dissent from that view given to us by Professor Wurm?—My impression is, that the Dukes of Oldenburg had, through the Treaty of Westphalia, a more distinct title to the Weser toll than the Electors of Hanover have ever had to the Stade toll.

1926. Mr. Fenwick.] Do you mean ever had before the Riverain States Commission?—Before 1844.

1927. Mr. Bowyer.] I suppose you are not prepared to give an opinion upon the point of German law?—No.

1928. Chairman.] The Treaty of Westphalia notices those tolls in a different manner, absolutely confirming the one and only noticing the other?—Yes; that is my impression.

1929. Sir James Graham.] Do you know what the amount of toll levied upon the Upper Weser was the year before it was suspended?—No, I am not able to state.

1930. You cannot form any comparison between the annual amount of the toll heretofore levied upon the Upper Weser, and the toll now levied upon the Upper Elbe?—I should think considerably less.

1931. But in what degree you do not know?—No.

1932. Mr. Ricardo.] Were both banks of the Weser in the territory of Oldenburg when they levied the duty?—I think they were; I am not certain as to the right bank.

1933. There is only one bank of the Elbe belonging to Hanover?—No.

1934. Sir James Graham.] Does your answer apply to the Lower Weser as well as to the Upper?—I understood the question was as to the Lower Weser; the Upper Weser traverses different states.

1935. Chairman.] Will you state whether you think the Sound dues are a parallel case to this?—The precedent of the purchase of the Sound dues in 1856, does not seem to me to afford a precedent for the purchase of the Stade toll at present. At that time a question was raised whether the general revenues of this country should be called upon to pay for the abolition of the dues which chiefly affected the mercantile classes and shipping, and that question was decided in the affirmative because it was shown that the people of this country generally were consumers of produce brought from the Baltic on which the Sound dues had been paid, and that therefore they were interested in the abolition of the Sound dues as tending to the reduction of the cost in consumption of those articles. But that argument will not apply to the case of the Stade toll, because the Stade toll is charged only on imports into Germany from the sea, and not on exports to this country; so that the tax in the one case falls on the German consumer, and in the other case the Stade toll does not at all affect the consumer in England.

1936. Sir James Graham.] According to your view the interest of Great Britain in the Sound dues was, as being importers and consumers, whereas her interest in the Stade dues is limited to the commercial interests of Great Britain as exporters?—As exporters, and likewise as to the interest of our shipping engaged in the carrying-trade of the Elbe.

1937. The interest of the consumer in reference to Stade dues does not enter into the question at all?—No.

1938. Whereas, in respect of the Sound dues, that was the principal question?—Yes.

1939. Mr. Villiers.] But you are deciding there rather a disputed question, namely, what is the incident from the duty paid on exports; you are deciding that it is entirely paid by the consumer, or by the importing country, whereas, looking at its operation upon the trade of that country which exports, and seeing what is the general effect of it in the diminution of the trade, it is considered by some to fall upon the exporting country?—Pardon me, I am not deciding any general principle.

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principle, but I am giving you one instance in which the principle has been so decided by the House of Commons.

1940. I do not know where you got the particular grounds upon which the Sound dues were decided by the House of Commons to be redeemed out of the public money; there must have been various reasons; probably it might have been thought that they affected the general interests of the country, the interests of the trading community, or of the community at large, and that therefore they should be paid for out of the general funds. I do not remember any particular reason being assigned such as you have named, that they fell upon goods coming from the Baltic, and generally upon the consumer in this country?—If you turn to the Report of the Committee on the Sound Dues in 1856, you will find the statement I have quoted distinctly made.

1941. Mr. Fitzgerald.] At any rate there would be this difference, that, if the levy of the Sound dues affected exports from England in the same way as the levy of the Stade dues affects exports from England, there was, over and above that, the fact that the levy of the Sound dues affected imports, whereas the levy of the Stade dues does not affect imports?—That is the distinction which I desire to draw.

1942. And, therefore, the interest in the one case was at any rate far greater and different in character to what it is in the other?—Exactly.

1943. Mr. Ricardo.] You stated, in the beginning of your evidence, that which we have had in evidence several times, namely, that Hanover does nothing whatever in return for the Stade toll which she levies?—I can ascertain nothing that Hanover does for the general commerce of the Elbe. I believe that Hanover maintains certain embankments on her side of the river, which are essential for the protection of her own lands, but are not essential to the navigation of the stream.

1944. She has no lights or buoys, or dredging of any kind in the river?—None.

1945. Denmark, I believe, did light the Sound, and did go to considerable expense in reference to the navigation of vessels passing by Elsinore?—Yes; that was one ground on which this country found itself under the obligation to compensate Denmark.

1946. There is no strategical position in reference to the Elbe held by Hanover which would enable her to enforce those dues; she commands no position which would enable her to interfere with the commerce passing from the North Sea to Hamburg?—On the contrary, in former years Hanover had an armed vessel anchored off Stade, and proceeded to such a length as to fire shotted guns upon an English steamer passing up the river. That armed vessel has, I believe, now been superseded by a battery on the shore for the same purpose.

1947. Is there any one thing that Hanover could do to retaliate upon our commerce, or upon us in any way, if we refused to pay those tolls?—Perhaps it would be as well if you would postpone that question; I shall come to that portion of the inquiry presently.

1948. In your judgment, as I understand it, the only reason why we submit to this injustice is, because we have submitted to it so long; there is no international law or no precedent which would justify the interposition of one country between the commerce of two other countries with which she has nothing to do?—My impression is, with regard to the title of Hanover, that till we created a temporary one for her by the treaty of 1844, no right existed upon her part whatsoever which could now be enforced against us.

1949. And that treaty being terminated, is it your opinion we should return to the same position?—Certainly not, if you mean the same position of the Stade toll before it had been reduced by the Dresden Convention of 1844.

1950. You stated in your former answer that before the treaty Hanover had no right whatever to claim to levy this toll; would she have any right if this treaty were to be terminated which she had not previous to this treaty being entered into, or should we return to the same position as we were in in that respect before?—There can be no doubt that in any negotiation with Hanover we should be embarrassed by the moral effects of our having entered into the treaty of 1844, but that treaty being abolished we should return precisely to the *status quo*, and be in a position to raise the question of the title of Hanover.

1951. That is your opinion?—It is.

1952. Chairman.] Should we not be in this worse position, that having agreed to a treaty to regulate it, it might be an argument used against us that that was,

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*pro tanto*, an admission of some right upon the part of Hanover?—That is the meaning of the words which I have already used, that we shall suffer by the moral effects of having entered into this treaty.

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1953. Mr. *Villiers*.] You do not deny that we have paid those dues as part of the treaty?—No.

1954. And that they have been paid from time immemorial?—So they have been paid by Hamburg; and so they have been paid by Denmark, under protest.

1955. Do you mean that we have always paid them under protest?—Not under protest.

1956. But we have always paid them?—We have always paid them; because, previous to 1815 and the treaty of Vienna, we had no alternative.

1957. Does that constitute a right, in your opinion?—That does not debar us at any period from questioning the title under which we were previously compelled to pay.

1958. Is that a rule of universal application, that where you have admitted, from time immemorial, a custom or usage, it does not prevent you at any time from disputing that right; or do you put that as peculiarly applicable to the Stade toll?—I should think it is applicable to all payments, except such as raise a presumption of some title known to the law.

1959. But customary payments resting upon long usage, and admission, and continued payment?—A man may submit to the payment of rent for a long period, before the discovery that his own title, or the absence of any title on the part of the claimant, would obviate the necessity of it.

1960. I only ask whether you lay that down as a general rule, or whether you only apply it to the particular case of the Stade dues?—Certainly, as a general rule.

1961. Mr. *Bowyer*.] Are you aware of the doctrine laid down by Grotius, with regard to toll upon foreign ships?—I am not aware of the passage to which you refer.

1962. Are you aware that Grotius lays it down, that according to the rules of international law, a toll upon foreign ships is unjust, unless some service is performed in consideration of that toll?—I am aware that that argument was strongly used in the discussions with Hanover previous to 1844, and that her title on that ground was disputed.

1963. It is in that part of Grotius's work in which he speaks about the freedom of the seas?—I only know it by quotation; I have not seen the original passage.

1964. You are aware that that is the doctrine of international law held by Grotius?—I am aware that that doctrine was quoted at the period when Hanover asserted the Stade tolls to be a sea toll, and she was then told that no sea toll could be valid as to its right unless she could show for it an international sanction, and that international sanction was totally wanting on her part.

1965. Mr. *Fitzgerald*.] A distinction has been attempted to be drawn between the case of the Stade dues and the case of the Sound dues, on the ground that Hanover does nothing in return for the Stade dues which she levies, and that in the case of the Sound dues Denmark did perform certain services in respect of the lighting of the channel and otherwise; are you aware that the ground taken by the Americans, in resisting the payment of the Sound dues was, that Denmark performed no service whatever in return for the Sound dues which she levied?—I am not aware of that fact as regards the United States, but I have always understood that, in return for the Sound dues, Denmark charged herself with the maintenance of certain lights along the coast of the Sound.

1966. Mr. *Bowyer*.] That would come within the doctrine of Grotius?—Yes.

1967. Mr. *Fitzgerald*.] Are you aware that dues are now paid to Denmark in respect of the lighting of the channel and other services which she performs?—Not as to those particular lights. I understand that, by the compact which we made with Denmark, in order to purchase the Sound dues, the charge for certain lights was extinguished by that payment; but we are now paying for certain other lights upon another part of the coast, which were not covered either at that time or now by the Sound dues.

1968. Mr. *Villiers*.] Do not you know that the Sound dues were completely distinguished from those dues which were paid for lights, and buoys, and pilotage, and other things?—No; I state the contrary.

1969. The Sound dues were a class of duties of different descriptions, some levied upon goods, some levied upon ships, and different reasons were alleged for

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*Mr J. E. Tennent.* their imposition; but there was no dispute whatever as to a large portion of the Sound dues having been paid where no services whatever were rendered?—That I believe to be the case, certainly, as to a portion of the Sound dues.

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1970. *Chairman.*] You have been asked a question upon this Stade toll, as to its long continuance; what is your opinion of the bearing of the Treaty of Vienna on that toll?—My conviction is, that by the operation of the Treaty of Vienna, the Stade toll ought to have been immediately abolished by the first Riverain Conference which was assembled to regulate the navigation of the Elbe.

1971. *Mr. Bowyer.*] Then you consider it as a river toll?—Yes, as a river toll.

1972. And not as a sea toll?—Hanover attempted to maintain that it was a sea toll, but the argument was so untenable and so unreasonable that she was eventually obliged to admit that it was a river toll.

1973. *Mr. Villiers.*] I think (the dates being between 1815 and 1844) she never gave up its being a sea toll till it became convenient to consider it a river toll in 1844?—Yes, her title to it as a sea toll having been pronounced invalid in 1844, she then submitted to have it dealt with as a river toll by the Riverain Conference.

1974. *Chairman.*] But it was a matter of protracted negotiation and dispute throughout the whole time, was it not?—From the year 1830 downwards.

1975. Was not it earlier than 1830?—1830, certainly, perhaps earlier.

1976. The Treaty of Vienna was in 1815; when did the first negotiations and disputes between this country and Hanover begin?—I think they did not arise till some considerable time after; I think about 1830. My belief is that they were mainly occasioned by the irritation felt at the occurrence I have before alluded to, of a British steamer being fired upon by the Hanoverian guardship, in her passage down the river.

1977. *Mr. Fitzgerald.*] Was not the question of whether it was a sea toll or a river toll expressly raised in the year 1821?—It was when the Riverain Commission sat.

1978. *Mr. Ricardo.*] For the first time?—For the first time. As well as I recollect, the tenor of the narrative is this: At the assembling of the Congress of Vienna, in 1815, when the regulations were passed with a view to establishing the free navigation of rivers, Hanover did not claim any exemption for the Stade toll, nor was any exception made for the Elbe; but, on the contrary, Hanover lodged an appeal, that in the event of any diminution of her receipts from Stade toll, she would be entitled to indemnification, thus admitting the toll to be a river toll, and, as such, liable to be reduced or abolished in pursuance of the Treaty of 1815. To that appeal I am not aware that any answer was given by the Congress of Vienna. But in 1821, when the Riverain States sent their deputies to constitute a conference for regulating the navigation of the Elbe, Hanover unexpectedly changed her ground, and entered a protest against their interference with the Stade toll, on the alleged plea that it was a sea toll, and therefore beyond the jurisdiction of a Riverain Commission. The Conference of 1821, on receipt of the protest, waived the consideration of the question altogether, and forebore to deal with the toll at all, thus reserving the rights both of Hanover and of Denmark, and of Hamburg, who protested against those rights. In 1830, the discussions were revived, and continued actively till the assembling of the next Riverain Conference in 1844; and, preparatory to that, Hanover again repeated her views as to the nature of the Stade toll, asserting it to be a sea toll, and not to be subordinated to their jurisdiction. But eventually finding that her title as a sea toll was impeached, and would not have been recognised by this country, Hanover consented to allow the Stade toll to be regarded as a river toll, and brought under the jurisdiction of the Riverain States.

1979. *Mr. Fitzgerald.*] It is now regulated by the Riverain Commission?—By the Riverain Commission.

1980. *Mr. Fenwick.*] Which sat in 1844?—Which sat in 1844.

1981. What effect had the decision of the Riverain Commission upon the validity of those tolls?—I think I shall best answer that question by adverting in the first instance to the object for which that conference was assembled, and its constitution under the Treaty of Vienna. Nothing appears to me to be more liberal than the principles of river navigation as laid down by the Treaty of Vienna. If the Committee will advert to them very briefly, they will find them embodied in the 109th to the 115th Articles; they declare the navigation of the river



river to be "entirely free," and prohibited to none. They legalise one tax, and one only, namely, that which is to defray the charges incident to the up-keep of the navigation, its amount being so moderate as "to encourage commerce and facilitate navigation;" and clause 111 declares in these words, that beyond the toll so levied and so applied, "the navigation shall not be burdened with any other duties" than the one so fixed and regulated.

1982. Mr. Bowyer.] The provision which you have just mentioned is, as it appears to me, in strict accordance with the doctrine of Grotius to which I have referred; that is to say, that there shall be no toll, unless something is done in consideration of such toll?—Yes, so strictly, that by the 113th Article of the Treaty of Vienna, the Elbe-bordering states, which are to receive this toll, are compelled to "keep up the towing-paths and keep open the channels of the river, in order that no obstacle may be experienced to the navigation." Now it follows that Hanover having admitted the Stade toll to be a river toll, it comes within the purview of the great international act which I have just quoted, and it therefore remains for those states who were parties to the Congress of Vienna to see that the principles of the Treaty of 1815 are faithfully carried out with regard to the Elbe, and to ascertain under what class of river dues the Stade toll falls; whether it is one of those which is to be maintained for the purpose of encouraging commerce and facilitating the navigation in the terms of the treaty, or whether, not belonging to that class which it obviously does not, it is not within that other class, with which (no services being rendered in return) the Treaty of Vienna expressly declares that commerce shall no longer be burdened. I find, with regard to the second class, namely, those tolls which were to be swept away utterly as a burden to commerce, that others were enumerated in the Treaty of Vienna of a somewhat similar character to the Stade toll; taxes which were remnants of an ancient system, by which the territorial proprietors along the banks of the different rivers, especially in Germany, took upon themselves to arrest the passage of vessels, and compelled them to unload their cargoes, and to expose their goods for sale for a certain number of days on the banks of the rivers, and again to reload them, using the cranes of the proprietors for that purpose; and for this taxes were imposed under the title of *droits d'étape*, *droits d'échelle*, and *droits de relâche forcée*. All those taxes were swept away by the 109th Article of the Treaty of Vienna; no exception was made in favour of the Elbe or any other river. No reservation was admitted of the Stade toll, or any other arbitrary impost which burdened without encouraging commerce, and obstructed without facilitating navigation; all were declared abolished in the interests of trade. So conscious was Hanover that this was the scope and intention of the Congress of Vienna, and that the Stade toll was doomed along with the others, that, as I have before stated, the Hanoverian deputy at the Congress contented himself with a declaration that Hanover would expect a "fair indemnity" for any diminution of income which might arise out of the contemplated revision of the tolls on the Elbe. No compensation, however, was awarded by the Congress of Vienna in any one case where these unwise and vexatious tolls were abolished.

1983. Mr. Villiers.] You say that in every case they were swept away?—Yes.

1984. All those rates which did originally exist upon the Danube were swept away, were they?—Not upon the Danube; the Danube has not yet been subordinated to the treaty of Vienna; but these tolls were swept away upon the Rhine, and upon the other German rivers.

1985. Mr. Foxcroft.] Then I understand that the convention which sat at Dresden in 1844 did, notwithstanding your views, meet and establish certain tolls upon the Elbe; they established the Stade tolls?—I have no doubt in my own mind that the Convention of 1844 pretermitted its own duties, by the course it then took.

1986. That is, that they acted contrary to their powers under the treaty of Vienna?—I believe so; I believe that the Riverain States in 1844, had they done their duty, would have ascertained whether the Stade toll was a tax upon the navigation of a river in return for services rendered, and therefore entitled to perpetuation under the provisions of the treaty; and on discovering that it was a toll for which no services were rendered, I believe it was the duty of that conference to have declared it abolished, pursuant to the 111th Article of the Treaty of Vienna.



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1987. Has any protest been made by any of the European states against that construction of their power?—Denmark and Hamburg both protested against the decision of the Riverain conference in 1844, and they would have persisted in their protest; but it has been stated, that on ascertaining that England was disposed to recognise the settlement of the Riverian conference, and finding that we had entered into the treaty of 1844, Hamburg and Denmark reluctantly gave way, and submitted to the impost.

1988. Mr. *Fitzgerald*.] Do you consider it to be competent for the Riverain Commission of the States of the Elbe, which is now about to meet, to raise that question, which you say ought to have been raised in the year 1844?—I believe it to be quite competent to them; and more than that, I believe it would be the duty of the Great European powers, who were parties to the Treaty of Vienna, to insist that they did so. I believe that there is not only that abstract right, but that there is a precedent for its exercise. By the Treaty of Vienna in 1815, the navigation of the Rhine was declared to be open and free to all; but Holland, in the year 1822, took upon itself to deny the passage of the Rhine to vessels coming from the sea. England resisted that attempt, and Holland insisted upon it, in her right as a Riverain State; but the Duke of Wellington was instructed, on proceeding to the Congress of Verona, in 1822, to protest against the assumption on the part of Holland. The Congress of Verona entertained that protest, and Holland was compelled to abandon the position which she had taken up. I therefore believe that it is not only the duty of the Riverain Conferences now sitting, or about to assemble, to reconsider the question of the Stade toll, but I believe it to be incumbent on the states, parties to the Treaty of Vienna, to insist upon their doing so, and to require that the principles of that treaty be carried out faithfully, instead of being violated, as at present, in the existing state of things.

1989. Are you aware that the Riverain Commission is about, within a very short period, to assemble at Dresden to reconsider the regulations under which the tolls are levied upon the whole course of the Elbe?—I am aware that the conference is about to assemble, if it has not already met.

1990. Mr. *Ricardo*.] Have you any knowledge of whether it is for the purpose of reconsidering the dues upon the course of the Elbe?—Certainly, it is to consider the dues upon the Elbe, but whether the Stade toll is to be included among them I cannot say; I presume it must be; it is now a river toll, and it will come within their purview.

1991. *Chairman*.] Have you seen the scheme which Mr. Ward gave evidence upon as to the proportions in which, if the Stade toll were redeemed, it would be just that the different countries should subscribe?—I have seen a document which has emanated from Hamburg, in which there is propounded a scheme for purchasing up the Stade toll from Hanover, and in which Hamburg has explained her own impression as to the proportions in which the countries interested should contribute for that purpose. Mr. Ward has stated that he considers that project to be fair. According to that scheme, Great Britain should pay more than one-half of the whole, upwards of 50 per cent.; Hamburg, nine per cent.; Holland, six or seven per cent.; the Brazils, five per cent.; France, about four per cent.; and the other minor countries in proportion, dividing the payment over 30 other countries whose shipping frequents the river. Now, I do not consider this an equitable proposal, because the calculation proceeds upon the assumption that the interests of England and Hamburg are so identical, that they could be measured by the fractional parts of 100; but I think our interests are unequal, and dissimilar in almost every particular. In the first place, as to the importance of the Stade toll to us, when diffused over 30,000,000 people, and borne in minute proportions by so many manufacturing towns and seaports as we possess, the Stade toll, although an admitted evil, is almost inappreciable in its ostensible effect on our commerce; but its influence must be much more formidable when concentrated on the 150,000 inhabitants of a single city, and the shipping of a single port. It then becomes a very serious thing for Hamburg, so that the importance of it to her, and the importance of it to us, are not homogeneous, and are not to be measured by the mere proportions of a uniform sum. Again, for another reason. England is not dependent upon the route of the Elbe alone; the British trade, even if the Elbe was closed to us to-morrow, would still find its entrance into Germany through other channels, through which our exports and our productions would reach their destination; and although no one of them might

might be so commodious as the Elbe is, still they would be available to us, and our interests would not eventually be perilled. To us the navigation of the Elbe is a matter of choice and of preference, and justly so; but to Hamburg, it is a matter of vital necessity; to her the free passage of the Elbe is all-important; it is the one river to which she has to look; she, therefore, has no alternative, whilst we have the choice of many. In the same way our interests and those of Holland and France differ very materially, and cannot be measured, as I have before used the expression, by the mere proportions of a round sum. Holland has the means of exempting herself from the Stade toll, by using the port of Harburg which is accessible to her small coasting vessels. France and Belgium have, to a very considerable extent, emancipated themselves by means of the railways; but our vessels cannot ascend the Kohlbrand to Harburg, nor can our manufactures be carried to advantage by railways, so that as to Holland and France, and Belgium, there is as wide a distinction between our interests and theirs, as there is between them and Hamburg. There is another thing to be observed, the citizens of Hamburg are interested solely in their capacity as carriers; they have no goods to export; they are not producers; but we are interested in our double capacity both as carriers and as producers, and in the latter capacity, having already a choice of lines by which to despatch our produce, no obligation rests on us to fine down the cost of conveyance upon one line, so long as another and a cheaper one is open to us. All those are points of dissimilarity which ought to be taken into account, and weighed well in considering the proportions that we ought to pay, if we are to pay at all for getting rid of the Stade toll.

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1992. Mr. *Villiers*.] If we are not only exporters, but carriers also, does not that give us a greater interest in having the port free?—As compared with some countries we have a greater interest, with others a less; and a different one from nearly all; all I contend against is its being stated that our interests are homogeneous.

1993. Sir *James Graham*.] In your view of the duty of the Riverain Commission about to assemble at Dresden, Great Britain would be considered, according to the rules of international law and equity, as not entitled to pay anything?—I find no provision made, by the Treaty of Vienna, for paying anything in any of those cases in which similarly unjust tolls have been extinguished.

1994. According to the view which you have expressed, you think that Great Britain might call upon the Riverain Commission to review the whole state of the tolls levied upon the Elbe, and claim exemption from Stade dues absolutely?—I believe so.

1995. Mr. *Fitzgerald*.] But if the Riverain Commission refused to entertain that claim upon the part of Great Britain, what remedy have we, if they have the entire jurisdiction over the subject matter submitted to them?—But I am not prepared to admit that the Riverain States, who were merely the delegates of the Congress of Vienna, have an absolute and final jurisdiction, and that their acts are without an appeal to the power which created them, and under which they derive their authority. I believe that, in the event of the Riverain States, on the Elbe, refusing to do justice in the case of the Stade toll, we should have an appeal to the Congress now assembling at Paris, precisely as in 1822, we had an appeal to the Congress then assembled at Verona.

1996. Sir *James Graham*.] The great powers contracting at Vienna are bound, *inter se*, to see justice done to Great Britain in every particular?—I think so. Not justice to Great Britain alone, but to all the other European states, whose commerce is affected by the Stade toll on the Elbe.

1997. Mr. *Villiers*.] Have we not heard from you that the fact of our Treaty in 1844, would make a very great difference in the claim which we might now put forth for exemption?—The fact of the treaty, I think, involves us in a moral obligation, from which, notwithstanding our legal right, we may find it difficult to escape.

1998. There will be no other way than putting an end to the treaty, and appealing to the Riverain Commission?—Undoubtedly the first step must be to get rid of the Treaty of 1844.

1999. It is the fact of having recognised the right to take the toll by the Treaty of 1844, is it not, that puts us at such a disadvantage in claiming exemption in future?—I think so.

2000. *Chairman*.] What would be the effect of getting rid of the Treaty of 1844.

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1844, or of giving notice to terminate the Treaty of 1844?—I believe the direct effect of giving notice to terminate the Treaty of 1844 would be, to place us in a condition at once to raise the question of the title of Hanover. I have looked carefully to the Treaty of 1844; and although it recognises the existence of the Stade toll, it does not by any means establish the title of Hanover to it. On the contrary, it accepts the reductions made in it by the Riverain Commission; it agrees with the arrangements made to regulate the navigation of the river, and it ties us up for 10 years from contesting either of those points; but it does not give an absolute and final acknowledgment of the title of Hanover, nor does it prevent us, at the expiration of those 10 years, from reverting to the *status quo*, from insisting then upon the same terms that we demanded unsuccessfully in 1844.

2001. Mr. Fitzgerald.] But does not it recognise the right of the Riverain Commission to consider it as a duty, which properly would fall under their jurisdiction by the terms of the Treaty of Vienna?—It does. The duty of the Riverain Convention to regulate the tolls on the Elbe is obvious, and the Treaty of 1844 recognises the arrangement they then made as to the amount of the tolls and the regulations for their perception; therefore it recognises the duty of the Conference of the Riverain States to administer the navigation of the river; but I do not see that it precludes us, after the term of the treaty shall have expired, from remonstrating against the effect of that administration, under the conviction that it is at variance with the principles laid down by the Treaty of Vienna.

2002. Is not the Convention between the Riverain States attached to the Treaty of 1844, and embodied in it?—It is.

2003. Then if we have recognised the right of the Riverain Commission to regulate the Stade toll as being a toll strictly under their jurisdiction by the Treaty of Vienna, how can we now call upon the Riverain Commission to consider the Stade toll as one not within their jurisdiction?—Pardon me; I think you misapprehend me. I quite agree that the Stade toll, as a river toll, is entirely within their jurisdiction.

2004. Mr. Villiers.] That it is a river toll?—That it is a river toll.

2005. You say it is a river toll, subject to their jurisdiction, which river toll so subject to their jurisdiction, is one of the tolls pointed to by the Treaty of Vienna, as tolls that were to continue?—No; one of the tolls that ought to be abolished.

2006. Have they not considered it also one of those tolls, which by the decision of the Congress of Vienna were to continue, inasmuch as it was a river toll for which certain services were rendered, or one of those tolls which they had a right to regulate which could not be abolished; I take it that that clause in the Treaty of Vienna recognises tolls of some kind?—Yes.

2007. Those tolls so pointed out by the Treaty of Vienna, the Riverain Conference were to regulate?—The Riverain Conference were to consider all tolls upon the river, as well those which were to be abolished, as those which were to be retained. The Riverain Conference did exercise that power, and did abolish certain tolls which were ordered to be swept away as being a burden to commerce; and my opinion is, that this is one toll which ought to have been swept away along with the others.

2008. But what have the Riverain Conference done? They have considered whether it was one of those tolls which ought to have been swept away, and they have decided that it was not, and have regulated it?—We have, by our treaty of 1844, bound up our hands for 10 years from protesting against that; but now that that treaty has expired, I consider that we return to the *status quo*, and are now in the same condition to raise the question that we were previously to 1844.

2009. Sir James Graham.] That is to say, by the Treaty of Vienna, the great powers laid down certain general principles for regulating the Riverain Commission?—They did.

2010. And one of those principles is, that for every toll levied, services shall be rendered?—Yes.

2011. Do I understand you, that for the Stade duties no service is rendered by Hanover?—None.

2012. According, therefore, to your interpretation of the Treaty of Vienna, the principles laid down, and the duties of the Riverain Commission under it, the Treaty

Treaty of 1844 having expired, it is now open to England to claim the application of the strict principle?—I think so. Sir J. M. Tennent.

2013. And under that principle, your view would be, that the Riverain Commission fulfilling its duty, would abolish the Stade toll?—I think so. 6 July 1858.

2014. Mr. *Ricardo*.] But the Riverain Commission, even if the Stade toll were abolished, would still exist for the purpose of police regulations, and other matters connected with the navigation of the river?—Certainly.

2015. They meet for other purposes besides regulating the Stade tolls?—Of course they do.

2016. Sir *James Graham*.] The question of whether Great Britain has condoned, and therefore sacrificed the principles of the Treaty of Vienna in our favour, would be a question of international law, upon which the Government would be guided by the advice of its law officers?—Quite so.

2017. It is a question of law?—Yes, of international law. My previous statements have gone upon the assumption that there has been no such condonation, and that therefore we are in a condition to demand the full performance of the engagements sanctioned by the Treaty of Vienna. But I have likewise stated, under the apprehension that we may have committed ourselves by the Treaty of 1844, that we are likely to be embarrassed by the moral consequences of that act, and it is upon that apprehension that I have glanced at the possibility of our being called upon to pay a portion of any sum that might be given for redeeming the tolls.

2018. It was a modified concession only from 1844, inasmuch as it was limited to 10 years?—Yes; I think it was a temporary suspension of our right to protest.

2019. That very circumstance of the engagement being binding only for 10 years, points to the right of reconsideration on the part of Great Britain at the time of entering into the engagement?—Yes; you have anticipated the statement which I was about to make, namely, that the temporary nature of the treaty itself shows that it was not requested by the country as a final arrangement of the Stade toll.

2020. Mr. *Villiers*.] I think you have already stated that there has been no protest or complaint as to the payment of duty from 1844 on the part of England?—Not that I am aware of.

2021. *Chairman*.] Assuming for a moment that the effect of the treaty of 1844, or other circumstances, preclude this country from denying the right to any toll, have you formed any opinion of whether the demand for the reduction ought to be from a quarter to a sixteenth?—That subject appears before 1844 to have received mature consideration at the hands of Her Majesty's Government; and the instructions to the Commissioner, who was despatched to Hamburg in 1844 with a view of negotiating regarding the Stade toll, were distinct, that he should insist upon the tax being reduced to an average of one-sixteenth per cent. on the value of the goods assessed. I therefore believe, that if the necessity of paying any portion of an indemnity to Hanover for the abolition of this toll is to be devolved upon us, we shall have no right to pay upon a larger basis than one-sixteenth per cent. instead of one-fourth, which is the basis of the present tariff.

2022. Mr. *Villiers*.] Are you aware of what the plan is?—I think it is an abatement, first, of 38 per cent.; there is that abatement before they began to calculate, and then they proceed to distribute the proportions between the different States now paying?—I think they have taken it at the same number of years' purchase, as in the case of the Sound dues, and then off that they have struck 38 per cent.

2023. Mr. *Ricardo*.] That is the plan supposed to be from the Governor of Hamburg, is it not?—Yes.

2024. *Chairman*.] Do you believe that there would be any loss to this country if notice was given to put an end to the Treaty of 1844?—I do not believe there would; I have already stated that the denunciation of the Treaty of 1844 seems to me an indispensable preliminary to raising any question either as to the title of Hanover to the toll in any form, or as to its amount; but it must be remembered that 12 months will be given to Hanover for consideration, during which we should retain any advantages that we have under the present treaty, therefore it is to be hoped that at the close of those 12 months, the negotiation would issue either in the abolition of the toll or in some other arrangement satisfactory to us; so that during that intermediate stage we should be at no loss whatever by the denunciation.

Sir J. E. Tennent. tion of the treaty; the toll would continue precisely as at present, supposing the notice had not been given.

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2025. Supposing notice was given, and the treaty terminated, taking into consideration the effect of the Riverain Conventions, would it be in the power of Hanover to go back to the Tariff of 1821, which was higher than that of 1844?—No, it would not; the Stade toll is not differential; the amount is the same on the goods of all countries; and as by the first article of the Dresden Convention, the tariff cannot be raised without the consent of the contracting State, it is not to be supposed that these States ask consent to increase their own taxation,

2026. Should we, under those circumstances, sustain any loss at all, either in respect of our commerce, our ships, or our goods, by giving notice to do away with the treaty?—If the Committee will permit me for a moment, I will endeavour to show them that we should not. If they will just bear in mind what took place in 1844, they will see the necessary consequence of undoing any portion of it. Previous to 1844, you may say that there was no tariff for the Stade toll. There was one so vast, that it included between 6,000 and 7,000 articles, and it was such a mass of confusion, that its collection was fraught with great hardship and inconvenience; and it was one of the merits of the Dresden Conference of April 1844 that it reduced that confusion to order, and gave us the present tariff, which is distributed in 47 classes, many of the vexatious circumstances connected with the collection being swept away. To that tariff we gave in our temporary adhesion by the Treaty of 1844; and as an inducement to us to do so, Hanover, by the 6th clause, gave us a reduction on certain articles, the produce of the United Kingdom, which are named, chiefly cloths and articles in metal, on which we were to have a reduction of one-third of the Stade toll, if carried in British vessels or vessels of the Elbe-bordering States. That is an apparent gain to the trade of Great Britain, but it is not so in reality, for Hanover at that time was bound by treaties with other nations as well as with us, which contained the most favoured nation clause, so that almost immediately after giving us that apparent advantage, Hanover was compelled to extend it to Belgium, and to all the other German States. Seeing that, by Treaty of 1844, the British goods named were entitled to be introduced at the low rate of Stade toll, either in British vessels or in vessels of any of the Elbe-bordering States, and taken to Hamburg, or to any port of the Elbe; Hanover immediately issued a decree, dated the 8th of September 1844, by which she extended the same privilege to German and to Prussian goods, if carried, not only in British or Elbe-bordering vessels, but in Swedish, Norwegian, and Belgian ships. Any of those goods, the produce of those countries, might be taken to Hamburg. By a further decree, on the 26th of September, the same privilege was given to Danish goods and to Belgian goods, if carried in Danish or Belgian vessels; and further than that, the United States and Mexico got the same privilege for their goods if carried in American or in Mexican ships; but there was this peculiarity in the latter case that, whilst British and German goods could be taken at the low rate to Hamburg, United States and American goods could claim it only when carried to Hanover and not to Hamburg. A further point of importance is to be remarked: the advantage, as conceded to us by the Treaty of 1844, was for 10 years only; but the same advantage is not only re-enacted in our favour by the two decrees I have quoted, but it is given to us without limitation as to time. The words are these: "The dues levied on goods at Brunshausen, shall, on the 1st of next month, be reduced to the amount specified in the above-mentioned treaty—first, for the goods specified in that article of British, German, or Prussian origin, if they pass the toll line, in British, German, Prussian, Swedish, Norwegian, or Belgian vessels; second, for the same goods of the origin of the United States if imported into our kingdom in American vessels, or in vessels belonging to the nations named in Article 1; third, for the same goods of Mexican origin, if imported into our kingdom in Mexican vessels, or in vessels belonging to the nations named in Articles 1 and 2." Here there is no limitation for ten years. British goods by that decree are absolutely admissible into any port of the Elbe, without limitation as to time either to us or to the other States named; nor is its enjoyment by the others made contingent on the duration of its enjoyment by us. The first thing to which I call your attention is, that if we abandon the Treaty of 1844, we fall back upon the decree which continues to us the same privilege. But then Hanover has a right to recall that decree, and she may do one of three things. She may either withdraw the privilege.

privilege from all the states to whom it has been given, because she may say, that she only gave it to Belgium and to the United States because England had got it, and as England has ceased to enjoy it, they shall cease to have it also; it is competent to her to do that, but not obligatory; or, in the second place, she may continue it to all alike, notwithstanding that we abandon the treaty; or, in the third place, she may strike us out of the decree, and continue its advantages to the other states, to our exclusion. Now, I will show you what the effect of the latter course would be. Hanover would continue it, we will say, to the German States; that is to say, those goods of German origin and in German ships would be admissible at two-thirds Stade toll; but they pay no Stade toll practically now, because German goods are never carried to Germany in German ships; so that that, though an apparent, would be no practical advantage to the Germans. The same thing applies to Danish, Prussian, and to Hamburg goods, so that there would only remain those of Belgium. But first as to the United States; their produce in those specified articles would still be entitled to the ostensible privilege as well as to those of Mexico; but, as I pointed out to you, the privilege only extends to those goods when carried to Hanover, and not to Hamburg; they already go to Hanover, that is, they go to Harburg, and so go free, so that they have that privilege at the present moment, and we enjoy it, and shall continue to enjoy it in common with them. There only then remains the case of Belgium, and that extends only to the limited number of articles in which Belgian industry might be supposed to compete with ours. But Belgium can send the bulk of those articles by the railway at present free of all duty, or else she can send them to Harburg free of duty, so that there would only remain a small proportion of Belgian manufactures in which I do not believe she could compete with us, but which would have a nominal advantage in the Stade toll tariff. I am, therefore, justified in the statement I have already made, that we incur neither risk nor loss by denouncing the treaty of 1844.

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2027. Sir *James Graham*.] Is the Riverain Commission already summoned to meet at Dresden?—Yes, I think it is sitting now; it was to meet in June.

2028. It is already sitting?—I think so.

2029. Then if the notice to Hanover be essential to our raising our claim before the Riverain Commission for the extinction of the Stade dues, we are out of season, not having given that notice?—I am not clear of that. The notice would take effect instantly upon its being given; if notice be given now that at the end of 12 months the treaty must cease, we should be still in time to take any proceedings that might be thought necessary pending the sitting of the Riverain Convention.

2030. If the English Government, according to your view, should be advised to take that course, not a moment's time should be lost in giving notice?—Certainly not.

2031. Mr. *Fitzgerald*.] In what respect is the giving of notice under the treaty necessary to set the Riverain Commission in motion to decide that question, which you say is within their province, whether this is a toll which ought, under any circumstances, to be paid or not?—It may be stated that there is nothing to prevent us from entering into negotiations with Hanover, notwithstanding the existence of the treaty; but I suspect that if Hanover were not disposed to entertain those negotiations, she might fairly say, You cannot question our title on the one hand while you are admitting it by treaty on the other.

2032. I am not referring to negotiations with Hanover, but I am referring to that which you referred to some time ago, namely, that we might call upon the Riverain Commission at the present moment to decide that this was a duty which under the Treaty of Vienna ought to be swept away?—I apprehend that the Riverain Commission would give us a similar answer. They would state that they had in 1844 made a settlement of the navigation of this river, which we had by our treaty of that year recognised, and therefore so long as that treaty exists we are not in a condition to go to the Riverain States.

2033. Mr. *Villiers*.] What are they sitting for; to revise something which they have done before?—They are sitting to revise the tolls upon the Elbe.

2034. Sir *James Graham*.] Is Hanover one of the Riverain Commission?—She is.

2035. Mr. *Ricardo*.] Hanover would probably protest against the question of the Stade toll being entertained, so long as the Treaty of 1844 was in force.

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in existence, and no notice of its termination had been given by Great Britain?—I think it is quite competent to Hanover to take that technical course; in addition to which there are obvious motives why it would be her interest to do so. In the first place, Hanover has never shown much alacrity to have the question of the Stade toll entered upon, and it was only after many years of fruitless representations that she was induced, in 1844, to come to terms at all. I therefore believe, that without some vigorous application, such as the denunciation of the treaty, you will fail to put Hanover in motion now; but in addition to that, Hanover has this obvious interest in view, namely, that the Stade toll is every year increasing. I have shown you that within 10 years it has doubled; she has less inclination, therefore, to compound for it now than she would have hereafter, because her compensation will be the greater, the longer the arrangement is deferred; and if she sees the absolute abolition without any compensation before her, of course the longer she can postpone that catastrophe the better.

2036. Sir James Graham.] A question was asked you with reference to what was termed the strategical position of Hanover with regard to the River Elbe just below Hamburg; are you aware that she has a battery at Brunshausen, where formerly there was a guard ship?—Yes.

2037. We were informed by Mr. Hargreaves that the battery guards the channel; and a question was put, "Does Hanover command the navigable channel of the Elbe up to Hamburg?" "Certainly, as far as Brunshausen," is the answer; have you any doubt of those facts being accurately stated?—I have not. There is one other point which I should wish to place before the Committee, which is this, that supposing we denounce the treaty, we thereby, at the expiration of 12 months, renounce our right to a reduction of one-third of the Stade toll, on a certain number of articles. Now, I have caused a list to be made out of those articles, and of the quantities in which they are imported, and the rate of Stade toll paid on them. I find that on them all we have been paying at the rate of 7,908*l.* a year, on which we should therefore lose 2,666*l.*, being one-third. That is the extreme extent of our loss under any circumstances.

2038. Coal is not one of the favoured articles?—No.

2039. Therefore *quoad* coal, which is one of the largest of our articles of export, and the most valuable, we should lose nothing by the abrogation of the treaty?—Nothing; but on the contrary, as I pointed out in a former part of my evidence, the only chance of getting justice done with respect to coal, is by getting rid of the treaty; because, under it, you are absolutely prohibited even from remonstrance.

2040. Chairman.] Is there any other point which you wish to place before the Committee?—Bearing upon the proposed termination of the treaty, there are two or three other minor matters worthy of notice. It may be said that, although Hanover could not raise the Stade toll upon us, in the event of our getting rid of the treaty she might raise her import duties on our produce; but that she cannot do, because Hanover is now part of the Zollverein, and bound to abide by the Zollverein tariff. Another question is, that she might re-impose some of the fees formerly exacted on the river in connexion with the collection of the toll. But that, too, is impossible, because they have been for ever swept away by the terms of the Conference of the Riverain Convention of 1844. Then there is the question of our detention at Brunshausen to pay toll when coming up the river, instead of paying it at Hamburg. It has been stated by one of the witnesses here, I think by Mr. Wurm, at No. 125 of his evidence, that, if we denounce the Treaty of 1844, we should again become liable to detention at Brunshausen. That is a mistake; we escape detention at Brunshausen, not by virtue of the Treaty of 1844, but by a decree of George the Second, when Elector of Hanover, in 1736; and from 1736 down to the present time we never have been detained at Brunshausen. And by the fourth Regulation appended to the Dresden Convention the obligation to bring to off the Schwinge was continued only "in so far as it had theretofore been in force," and not having been in force as regards British ships prior to 1844, it could not now be revived.

2041. Sir James Graham.] You have just cited the decree of George the Second?—Yes.

2042. And you contend that that obligation contracted by George the Second is still binding?—It is.



2043. And would not justify the compelling British ships to bring to at Bruns- Sir J. E. Tennent.  
hausen?—Just so.

2044. Mr. *Ricardo*.] I observe that you consider that the increase of trade to Harburg is dependent upon other things than its exemption from Stade dues; what has been the cause of that increase?—I think the Stade dues have had very little to do with it.

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2045. Do you think that the object of Hanover in exempting Harburg was for the purpose of diverting the trade from Hamburg to Harburg?—I have no doubt that it was; that the object was to encourage the trade of Harburg at the expense of Hamburg.

2046. The ships trading from the mouth of the Elbe, namely, the Dutch ships and German ships generally, are much more adapted for entering the port of Harburg than our own?—Our own large steamers cannot ascend the Kohlbrand at all.

2047. In fact, there would be considerable difficulty in finding ships fit to navigate the North Sea, and at the same time to go into that part carrying a heavy cargo?—There would.

2048. Mr. *Villiers*.] But I think you stated before that there was a great convenience in having Harburg as a port, from the circumstance of its being the terminus of railways which communicate all over Germany?—Yes, for colliers and small coasters, such as can ascend the river.

2049. But there is a positive convenience in Harburg from its being the terminus of the railways, is there not?—Certainly.

2050. There is a question, too, of widening the canal, is there not?—There is a question of not only widening the canal, but of bridging that branch of the Elbe which would connect Harburg with Hamburg.

2051. That looks as if Hanover had a greater interest in encouraging Harburg than in receiving Stade toll, if they are going to deepen the canal by which they will lose Stade tolls?—Yes.

2052. Her great object is to encourage Harburg?—Yes.

2053. And if they deepen the canal they will lose Stade tolls?—Yes.

2054. Who was the foreign minister when that treaty was made in 1844?—Lord Aberdeen.



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# A P P E N D I X.

## Appendix, No. 1.

STATEMENT put in by Professor *Wurm*, of Hamburg, in conformity to an Injunction of the Select Committee on the STADE TOLLS, in proof of the Evidence given by him, on Tuesday, June 8th, 1858. Appendix, No. 1.

On the 15th August 1692, letters patent of publication of two distinct documents, the treaty of March 17th, 1691, with the Free City of Hamburg, and the tariff of 1692, were issued at Stade, by the Governor-general and (Provincial) Government instituted by the King of Sweden in his duchies of Bremen and Verden.

In these letters patent, it is said that there had been many misunderstandings in consequence of the tariff not having been found fully adapted to the altered condition of the traffic, of the denomination of goods, the mode of packing, and the coin itself; that therefore the King never having intended to exact anything from any one, beyond his own right and competence, had instituted a commission to look into this; that since certain deputies had appeared from the neighbouring city of Hamburg, towards which, as it were to a centre, the whole maritime trade carried on by means of the Elbe is verging, the Royal Government, in virtue of His Majesty's most gracious special order, have at different times caused conferences to be held with the said deputies, for the purpose of a constant rectification of the said toll-rolls; that at last, by the blessing of God, an agreement had been so far come to, that by unanimous applacitation the following roll had been established as a regulation for the future, according to which at the receiving office on the river Elbe, all and each description of merchandise was to be taxed, which regulation was to be printed and published for general knowledge. "And," the letters patent go on, "upon all those who are subject to our bidding and forbidding, we lay this serious order to conform themselves according to that tax and toll-roll in perpetuity, as to an invariable rule and guidance, nor to pretend or undertake in any manner anything contrary to the same."

II. From these letters patent it follows clearly:—

1. That the King of Sweden was fully conscious that, in his quality of Duke of Bremen and Verden, he was not master of setting up, according to his own interest or pleasure, any tariff at Stade: he did not intend to demand anything beyond his own right and competence.
2. That the tariff of 1692 was by no means "octroyé" by the King or the territorial lord; but
3. It had been agreed to by the deputies of Hamburg, with whom the King's Commissioners had held conferences at the King's special order; and
4. It was published as an "invariable rule and guidance" for the future in "perpetuity."

III. The above letters patent are inserted along with the treaty of 1691, and the tariff of 1692, in an official collection of ordinances for the duchies, printed and published at Stade, by the provincial government, at the King's order, for constant and invariable observance, in 1693.

The same has been republished in the same official way at Stade, in 1711. It is this edition of which I beg to hand in a copy, which I desire may be returned, as the book belongs to the library of the Hamburg Chamber of Commerce.

IV. There are, besides, two official republications under the Hanoverian dominion, the one "published by the former Swedish government, such as it had been maintained ('beibehalten') by the present Royal British and Electoral Brunswick-Luneburg Government,"  
o.81. s 3 (Stade

Appendix, No. 1. (Stade 1716, 14 pp.); and the other, which is quoted by the Dresden Committee of Mediation, (in their Report of April 7, 1843, p. 676,) as having been published in 1739, at the commandment of the King-Elector, for "constant and invariable observance."

This would appear, by conclusive implication, to bring home the acknowledgment of the tariff of 1692 to the Electoral Government of Hanover.

V. But there is a very explicit declaration of the Electoral Government to the same purpose.

On the 8th of June 1719, when the Senate of Hamburg had laid a number of grievances before the Royal and Electoral Government at Stade, this Government directed to two of the receiving officers an order, which contains the following words: "It has been found necessary to impose upon you, as is hereby done, a serious prohibition on a notable penalty, not to deviate in any point from the above-mentioned toll-tax, which has been published, and on both sides approved of and accepted, '*pro formâ*,' nor to demand anything more for taxable goods than is therein mentioned, but you are enjoined to follow and observe the same strictly on every point."

VI. When, in face of such an express declaration, we find it asserted by Hanover that the tariff had never been acted upon, or that it had only been acted upon so far as it agreed with the previous observance, it is hard to abstain from simply saying, "*hæcemus confidentem reum*."

As to the fact of the deviations, implicit and explicit, from the tariff, it will be sufficient to refer to the specimens contained in the Annex A., being a selection from the manuscript analysis which I mentioned before the Committee.

Annex A.

VII. When Hanover perceived that her arguments were untenable, by which she had tried to discredit the tariff of 1692, she put forward a more venturous assertion still. She attempted to invalidate the treaty itself, by representing it to have been obtained by bribery.

Nothing in the way of proof was advanced, except that a man of the name of Niels Bielcke was said to have been sentenced in Norway for false coining. Niels Bielcke was certainly one of the names appearing at the bottom of the treaty, but there is no proof whatever as to the identity of the persons. Nor let it be forgotten that it was Sweden, and not Hanover, that concluded that treaty; and, as far as can be ascertained, Sweden never breathed a syllable of suspicion. On the contrary, in 1701, ten years after the signature, Sweden declared that there could be no doubt as to the validity of the treaty; it was only on its interpretation that a question had been raised. That the treaty has been ratified in due manner has never been contested; nor could the precarious objection which has occasionally been attempted ever be brought forward upon the ground of the disadvantageous contents of the document. For what interest could be said to have been sacrificed, when it appears that the tariff of 1692 does not in any way fall short of the tariff of 1613, where the principle of the 1-16th per cent. *ad valorem*, taken from the ancient rule, is laid down in all but the same words?

VIII. When Hanover took up this position, she altogether forgot the laws of the Germanic Empire, by which she was prevented from raising the tariff of the old rolls. If the tariff of 1692 had not been valid, Hanover would have to go back to the tariff of 1613, containing the same principle of the 1-16th per cent. *ad valorem*, which is the only legitimate basis of the Stade tolls.

(signed) C. F. Wurm.

28, Villiers-street, Strand, London,  
18 June 1858.

(ANNEX A.)—EXTRACT from an Analysis of different Tariffs of the Stade Toll, compared with the original Elbe-Toll Tax, adopted by Mutual Agreement in 1692 as an immutable Form ; showing the gradual Increase of the Duties arbitrarily raised by *Hanover*.

ARTICLES.	Elbe-Toll Tax of 1692.	Tariff of 1771.	Tariff of 1804.	Tariff of 1814.	Tariff of 1823.	OBSERVATIONS.
Alum - - -	Cask - - - Loose - - -	£. d. - - 6 - 6	Cask - - - If a cask weighs more than 100 lbs., per 100 lbs. - - 6	As in 1804 - - -	As in 1804 - - -	- - Since 1804 the arbitrary distinction of weight is introduced, so as to make each hundred-weight pay the rate which was originally put on any kind of cask ; as the tax says distinctly, "hogshead, barrel, ton or cask, to pay 6d."
Olive oil, and everything called oilum.	Cask - - - 1 -	Fine cask or jar 1 - Case or package 4 - Olive oil, cask 1 -	Same as in 1771 -	£. d. All oils to pay same rate as drugs, 2s., 3s., 4s., except spice-oil, per lb. - - - 3 per bale - 32 -	As in 1814 - - -	- - The tax of 1692 says clearly, everything called oil is to pay, per cask, 1s.; this rate remains, since 1814, for no kind of oil, and the duty is raised to 2s., 3s., and 4s., with numerous exceptions rated still higher.
Brandy and rum -	Cask of any kind 1 -	As in 1692 - - -	As in 1692 - - -	Cask - - - 4 - Barrel, of any kind - - 3 - Basket - - 2 -	As in 1814 - - -	The duty is raised three and four-fold.
Prunes - - -	Pack or case - 1 9	As in 1692 - - -	Pack or case - 1 9 If case contains 76 boxes - 6 - If half the number - - 3 -	As in 1804 - - -	Case - - - 6 - Half-case - 3 - Small box - 1 9 Bag - - - 1 9	- - Gradual increase; originally the largest package paid 1s. 9d, but, gradually, distinctions were made, so as to keep the original rate of 1s. 9d. only for the smallest kind of boxes, and the duty for other packages was raised four-fold.
Cinnamon - - -	25 lbs. - - - 1 -	As in 1692 - - -	25 lbs. - - - 1 - Parcel without weight - 32 - As in 1771 - - -	£. d. Bale - - - 32 -	Bale - - - 32 - Per 100 lbs. - 12 -	- - Cinnamon was certainly more valuable in the seventeenth than in the present century, still the duty is raised three-fold.
Drugs - - -	Case, pack or cask - 4 - Cask - - - 3 - Bale or keg - 2 -	Case, pack or parcel - 4 - Cask or keg - 3 - Bag, basket, tub 2 -	As in 1771 - - -	As in 1771, but with many exceptions. £. d. All medical drugs - - 16 - Per 300 lbs. - 4 -	As in 1814 - - -	- - Here also the rate is gradually increased, by altering the names of the packages; and the duty is raised four and eight-fold for medical drugs.
Coffee - - -	One single bale 4 -	Hogshead, bale or package, under 60 lbs. 8 - Per 300 lbs. - 4 - Cask or pipe - 16 - From Holland, per 150 lbs. - 4 -	As in 1771, with the exception of case without weight - 16 - 4 or 1/3 ton - 4 -	Package, ton, &c., without weight - 16 - Hogshead - 12 - 1/3 bale or bag - 8 - 1/4 bag, seroon - 4 - From Holland, per 150 lbs. - 4 -	As in 1814, with the exception of coffee samples, per pack 4 -	- - Originally any bale paid 4s.; afterwards this rate is confined to parcels of samples, and other packages are raised up to four times the original duty.

(Annex A.)—EXTRACT from an Analysis of different Tariffs of the Stade l'oll, compared with the original Elbe-Toll Tax, adopted by Mutual Agreement in 1892, &amp;c.—continued.

ARTICLES.	Elbe-Toll Tax of 1892.	Tariff of 1771.	Tariff of 1804.	Tariff of 1814.	Tariff of 1892.	OBSERVATIONS.
Indigo - - -	<i>s.</i> d. Keg or bale - 6 - If any person deems himself overcharged, he may produce his in- voice and pay one- sixteenth per cent. <i>ad</i> <i>valorem</i> .	<i>s.</i> d. Keg or bale - 6 -	<i>s.</i> d. Keg or bale - 6 - Case, or a quart of 300 lbs. - 18 - Sercon of 200 lbs. 12 - 100 lbs. - - 6 -	<i>s.</i> d. 100 lbs. - - 6 - Case, barrel, pack or quart, without weight 18 - Bag or sercon, ditto - - 12 - Half sercon, or bundle - - 6 -	<i>s.</i> d. As in 1814, ex- cept double sercon - 24 -	-- The rate for any bale was, originally, 6 <i>s.</i> ; but, gradually, most kinds of packages were rated three and four times as high.
Fancy goods - -	<i>s.</i> d. Bale - - 32 - Or, according to the choice of the owner, one-sixteenth per cent. <i>ad valorem</i> .	Each package 32 -	As in 1771 - -	As in 1771 - -	As in 1771 - -	-- Here is the principal deterioration: the value is not taken into consideration, and the owner is deprived of the faculty given to him by the original tax, of paying one-sixteenth per cent., according to the value.
Yarn (linen or thread)	<i>s.</i> d. Fine white sewing thread, per lb. - 6 Coarse, per 30 lbs. - 3 Coloured do. - - 3 <i>N. B.</i> —Whosoever deems himself over- charged may pay one- sixteenth per cent. <i>ad</i> <i>valorem</i> .	Each parcel - 32 - Thread from Leyden, and other, one-sixteenth per cent. <i>s.</i> d. Coloured, per case - - 32 - Sewing thread, fine, per lb. - 6 Coarse ditto - - 1	As in 1771 - -	<i>s.</i> d. Each parcel - 32 - Coloured, per case - - 32 - Sewing thread, fine, per 1 lb. - 6 Coarse - - 1 Yarn or thread, without de- nomination, per bale, un- der 100 lbs., per 1 lb. - - 6 Over 100 lbs., per 1 lb. - - 1 As in 1804 - -	<i>s.</i> d. Yarn and thread, bale, under 100 lbs., per 1 lb. - - 6 Over 100 lbs., per 1 lb. - - 1 Leyden thread, 1-16th per cent. <i>s.</i> d. Linen, bale - 32 - " per 1 lb. - 1 All sorts of co- loured, per 30 lbs. - 2 6 Without weight 32 - Cotton yarn, per package - 6 - 10 bundles of 5 lbs. - - 6 -	-- The bale of yarns or thread is rated, 1814, 6 <i>d.</i> per 1 lb. or 50 <i>s.</i> per 100 lbs., whilst the coarse kinds in the original tax paid only 3 <i>d.</i> per 30 lbs.; whilst a bale of 30 lbs. containing the coarse kinds are raised from 3 <i>d.</i> to 2 <i>s.</i> 6 <i>d.</i> , or tenfold. Besides, the faculty originally al- lowed for all kinds of yarn and thread, of paying one-sixteenth per cent., <i>ad valorem</i> , remains only for one kind of thread made in Leyden.
Twist - - -	<i>s.</i> d. Cotton or wick yarn, per case 6 -	Wick yarn, per case - - 6 -	Wick yarn - 6 - Cotton yarn - 6 -	As in 1804 - -	As in 1804 - -	-- By introducing the distinction of weight the duty is raised twenty-fold; for, in the tax of 1892, the case was to pay never more than 6 <i>s.</i> ; but now, a case containing, for instance, 200 bundles of 5 lbs., which is frequently occurring, had to pay 120 <i>s.</i>
Silk - - -	<i>s.</i> d. Piece - - 6 Everything not spe- cified, one-sixteenth per cent. <i>ad valorem</i> .	Piece - - 6	Piece - - 6	20 yards Bale - - 32 -	12½ yards Bale - - 32 -	-- The original duty is 6 <i>d.</i> the piece. In order to raise the duty, the measure of the piece is ar- bitrarily fixed, first at 20, then at 12½ yards, although no such pieces occur in trade; so that the merchants are forced to pay the high rate of 32 <i>s.</i> per bale.



IL 11 One Male Cotton farm

FR 166 One Male Linnen Cotton

~~W & E~~ 2944.5 ~~Ec~~ 2946 L 404/le

~~ML~~ 1 ~~M~~ 3403 ~~Ec~~ 3404

~~W~~ 3406 Five Males Three Linnen Cotton

~~X~~ 1208 One Male Linnen farm

~~S~~ 49 ~~S~~ 33. W S 50. 1. 2. 3

Six Males Worsted farm

J O 1. ~~Ec~~ 164 Two Males Woollen Cotton

EV 20 One Male Linnen thread

EL 2. 9. 10 Three Grates. Cuthman

3263 9. One Gask Linnen

Three Blocks Tree Stone

~~F S~~ 204 One Gask Saddlery

~~H~~ J D 14 ~~D~~ 3. "S 22.

Three Males Woollen

S 16. 17. 18. Three Gases Machinery

G M 1 One Gask Cheese

2 One Gask Ale

~~G R~~ 1. 2. 3. y Four Gask Corn Liffs

M. P. M.

J. G. H.  
R. H. L.

*[Signature]*

## Appendix, No. 2.

Appendix, No. 2.

REFERRED to in Mr. *Hargreaves*' Evidence, 11 June 1858.

COCKET, for British Goods free of Duty.

Custom House, Hull.

In the "Queen of Scotland," W. Crosse, for Hamburg.

Know ye that Gee & Co., have entered  
 Value, Goods free of duty, being goods the growth, produce, or manufacture of the  
 United Kingdom, not prohibited by law to be exported, namely:—Worsted  
 £. yarn, linen, woollen and cotton manufactures, linen yarn, thread, earthenware,  
 hardware, freestone, saddlery, machinery, cheese, ale (not for drawback), and  
 horn tips.

Dated this 12 September 1845.

*J. W. Lister*, pro Collector.*C. W. Petty*, pro Comptroller.

Entered outwards, 1845.

4,036.

23.

## Appendix, No. 3.

PAPERS delivered in by *John Hargreaves*, Esq., 15 June 1858.

Appendix, No. 3.

## STADE DUES.

(The original of this Decree is to be found in Martin's "Nouveau Recueil Général de Traités," Tome VII.)

ERNEST AUGUSTUS, by the Grace of God, King of Hanover, &amp;c.

WHEREAS by paragraph 3 of our decree of the 8th of this month, relating to the reduction of the Brunshausen toll for goods and ships of different nations, the free city of Hamburg has been excluded from the privileges granted to the German States in paragraphs 1 and 2 of such decree, but as the reason for such exclusion does not exist any more at present, and as we have also resolved to grant such privileges to the same extent to the Danish and Belgian Governments,

We decree as follows:—

Sect. 1. The privileges granted by Sect. 1 and 2 of our decree of the 8th of this month to goods of German origin and to German vessels, with reference to the toll and other dues levied at Brunshausen, shall, from the 1st of next month, also be granted to the same goods of Danish, Belgian, or Hamburg origin, and to Danish and Hamburg vessels.

Sect. 2. The section 3 of our decree of the 8th of this month is herewith renounced.

This decree is to be inserted in the first part of our publication of laws.

(signed) *Ernest Augustus.*  
*Von Fulke.*

Hanover, 26 September 1844.

Schulte.

(The original of this Decree is to be found in Martin's "Nouveau Recueil Général de Traités," Tome VII.)

ERNEST AUGUSTUS, by the Grace of God, King of Hanover, &amp;c.

WHEREAS Article 6 of the Treaty of Commerce and Navigation with the Government of Great Britain, which treaty was made public by our patent of to-day, grants certain privileges to British goods and ships with reference to the Brunshausen toll.

We decree, in consideration of the relations of commerce and navigation existing with other States, as follows:—

Sect. 1. The dues levied on goods at Brunshausen shall, upon the 1st of next month, be reduced to the amount specified in the above-mentioned treaty:

1 s. for the goods specified in that article of British, German, or Prussian origin, if they pass the toll-line in British, German, Prussian, Swedish, Norwegian, or Belgian vessels.

2 s. for the same goods of the origin of the United States, if imported into our kingdom in American vessels, or in vessels belonging to the nations named in Article 1.

3 s. for the same goods of Mexican origin, if imported into our kingdom in Mexican vessels, or in vessels belonging to the nations named in Articles 1 and 2.



## Appendix, No. 3.

In order to claim the above-mentioned reduction in the dues, it is necessary to produce with the landing manifest an official certificate of the origin of such goods.

Sect. 2. All additional dues, whether in money or kind, which have hitherto been levied at Brunshausen, including our ship toll, and the so-called rower's toll of the town of Stade, are in conformity with Sect. 1 of the regulations regarding the Brunshausen toll, as agreed to at Dresden on the 13th of April of this year, abolished and reduced.

1 s. for German, Prussian, Swedish, Norwegian, and Belgian vessels, and their cargoes, whatever the latter may consist of.

2 s. for vessels of the United States, in so far as the above-mentioned additional dues have reference to the vessel, or would be paid on such goods the origin of the continent of America, or the Antilles, and that would be imported from such countries into our kingdom.

3 s. for Mexican vessels, in so far such additional dues would fall upon the vessel, or be paid on goods of Mexican origin that would be imported from that country into our kingdom.

Sect. 3. The Hamburg vessels and their cargoes are exempted from the privileges granted in virtue of Sect. 1 and 2 to German vessels and their cargoes, as for them the principles hitherto applied in the levying of the Brunshausen toll shall in the meantime remain in force.

This decree shall be inserted in the first part of our publication of laws.

Hanover 8 September 1858.

Schulte.

(signed) Ernest Augustus.  
Von Fulke.

Gentlemen,

Hamburg, 16 April 1857.

THE purport of these lines is to direct your attention to a competition which threatens to become very injurious to the trade between Hull and Hamburg since the Sound dues have been done away with.

You will probably have seen already circulars from Stettin, advertising a regular line of screw steamers to Hull; at the same time pro forma accounts of charges have been issued, showing that goods can be carried from Hull to Berlin at a lower expense *viâ* Stettin than *viâ* Hamburg.

It will suffice for our purpose to select one of these accounts, showing the expenses on a bale of cotton twist, of which the following is the translation:

COPY OF STETTIN PRO FORMA ACCOUNT.

Pro forma Account of Charges on One Bale of Cotton Twist, received from Hull, forwarded per Railway to Berlin:

1 bale twist, weighing 1,200 lbs. English weight, measuring about 50 square feet, equal to 10 cwt. 64 lbs. Prussian weight, equal to 10 cwt. 89 lbs. custom-house weight.

	£.	s.	d.
Freight from Hull to Stettin, 3 d. per ft.	-	-	12 6
Primage, 25 %	-	-	3 1
	£.	-	15 7

	at 6½	-	-	5 6 -
Sundry petty expenses, 1½ /gr. per 4,000 lbs.	-	-	-	- 6
Town dues, 6 d. per Prussian cwt.	-	-	-	- 5 3
Weighing and custom-house officers, 6 d. per custom cwt.	-	-	-	- 5 6
Receiving, &c., 7½ /gr. per bale	-	-	-	- 7 6
Freight per rail to Berlin, 9 /gr. per custom cwt.	-	-	-	- 3 8 -
Commission per bale	-	-	-	- 15 -
				9 17 9

The charges amount at the freight of 4 d. per lb.	-	-	- 11 10 3
" " " 5 d. " - - -	-	-	- 13 1 9
" " " 6 d. " - - -	-	-	- 14 24 3

There are errors in this statement with respect to measurements and weight, which we will at once correct; the average measurement of a bale of cotton twist of 1,200 lbs. net English weight, will be more than 50 square feet, say at least 52 feet, and the average gross weight about 11  $\frac{4}{7}$  cwt. Prussian custom-house weight.

The

The expenses for such a bale forwarded either *viâ* Stettin or *viâ* Hamburg, will be in fact Appendix, No. 3. as follows, viz. :

## STETTIN.

	£.	s.	d.	£.	s.	d.
Freight from Hull 3 d. & 25% on 52 ft.	-	-	16	3		
			at 6 $\frac{1}{2}$	5	12	6
Stettin charges and commission	-	-	1	4	6	
			6	17	-	
Carriage per rail from Stettin to Berlin on 11 $\frac{45}{100}$ cwt.						
at 9 /gr.	-	-	3	13	-	
TOTAL expense on 1 bale from Hull to Berlin <i>viâ</i> Stettin	-	-	10	-	-	
			or at 6 $\frac{1}{2}$	-	-	£.
				1	10	-

## HAMBURG.

	£.	s.	d.	£.	s.	d.
Freight from Hull 3 d. & 25 % on 52 ft.	-	-	16	3		
			13	2/-	B°.	10 11
Stade dues	-	-	-	-	-	11
Hambro' charges and commission, if the bale is delivered direct from on board to the railway company	-	-	-	-	12	
			B°.	12	2	
			152 %.	-	-	6 4 /gr.
Carriage per rail from Hamburg to Berlin on 11 $\frac{45}{100}$ cwt.						
at 13 $\frac{1}{10}$ /gr.	-	-	5	2		
TOTAL expense on 1 bale from Hull to Berlin <i>viâ</i> Hamburg	-	-	11	6 /gr.		
			or at 6 $\frac{1}{2}$	-	-	£.
				1	13	7

This difference comes the more into consideration, as Berlin is the very station by which the majority of goods must be directed into the interior of Germany; and again with respect to cotton twist into the weaving districts of Silesia, Saxony, Bohemia, Moravia, and, in fact, the greater part of Austria, there is no doubt that the advantages of the Stettin route will very soon be generally known, and the stream of goods will find its way to Stettin.

Upon a minute examination of the above accounts, in order to find out the means of a reduction of charges in favour of our port, it strikes us, that the freight from Hull to Stettin is the same as to Hamburg. Upon inquiry, we are informed that screw steamers will do well at that rate of 3 d. and 25 %, as they calculate also upon a good return freight to Hull with grain, seeds, &c. during the whole season.

We have not taken into consideration any difference in the premium of insurance, which will be much the same to both places, and even if there is a difference early or late in the season, it will be too trifling to have any effect upon the whole business.

The Stade dues do not even weigh so heavily on cotton twist as they do on woollen yarns and manufactured goods; but the former exertions of the Hambro' authorities to do away with this remnant of the club-laws having been ineffectual, and since our city has been forced by the other German governments to acknowledge it, we have only the hope that we may get rid of the same at a later period.

The Hambro' charges are now reduced to a minimum, in case the goods are forwarded immediately per rail; a further reduction is impossible, and would moreover in fact be of no consequence.

The chief disadvantage for us is in the carriage per rail to Berlin, being 13  $\frac{1}{10}$  /gr. a cwt. from here against only 9 /gr. from Stettin; however, there is hardly any chance for an alteration in this proportion. Our railway to Berlin cuts through Danish and Mecklenburg territories; both governments have imposed transit dues, amounting to 2  $\frac{1}{2}$  /gr. a cwt.; after deducting these duties, the real freight for the distances of 38 German miles remains only 3  $\frac{1}{2}$  d. a mile per cwt., which is the lowest rate of rail-freight all over Germany, while the freight from Stettin to Berlin is 6 d. a mile, the distance being 18 miles; consequently, our endeavours to obtain a reduction of freight per rail have scarcely any chance of success.

We have thus laid before you all the explanations we are able to furnish, touching this most serious competition, and it rests now solely with you to consider whether you will allow

Appendix, No. 3. the Stettin opposition to gain ground and strength, so as to absorb a large portion of the forwarding trade to the greater part of Germany.

In case you should find your own interest in directing your steamers to Stettin, we can of course not expect that you will do anything to check the stream; but if you prefer keeping your vessels in the old established line, we take the liberty to express our opinion to the effect that the proper moment for opposing the turning stream is now, while it is still in the beginning and will have to contend with many difficulties. The accommodations of the Stettin harbour are still deficient, and no regular train of goods from your port is established yet; the voyage from Hull to Stettin will last almost as long again as to Hamburg, and the steamers are sure to be dispatched much quicker here, where everybody has to look after his own affairs, while at Stettin the trade is subject to custom-house regulations and the good-will of the royal authorities.

The most effectual means to check the Stettin opposition would be an early reduction of freight from Hull to Hamburg, sufficient to bring our charges on a level with those *viâ* Stettin. If you adopt this measure, which we beg to recommend most strongly, our inland friends will soon find out that they save time on the route *viâ* Hamburg, and will stick to it, if only they have not to pay dearer than *viâ* Stettin. If after some time the first excitement created by the Stettin circulars will have died away, you will have a chance of resuming the old freight, particularly late in the season, when the Baltic becomes unnavigable.

Hoping that you will take into consideration this affair, we are, &c.

(signed)	<i>A. F. Neubauer.</i>	<i>Theo. Hinsz.</i>
	<i>J. J. W Unbehagen.</i>	<i>H. J. Merck &amp; Co.</i>
	<i>Soltau, Trautmann &amp; Co.</i>	<i>G. J. F. Rode.</i>
	<i>J. J. Liebert.</i>	

#### Appendix, No. 4.

Appendix, No. 4. PAPERS delivered in by Mr. *R. Glover*, and referred to in his Evidence, 15 June 1858.

(No. 1.)

COPY of a NOTE which is given to the Person who delivers the Bill of Ladings and Cockets on the Vessel passing Stade, and which is required to be delivered up to the Hanoverian Custom-house in Hamburg.

#### ABFERTIGUNGSSCHEIN.

No.

SCHIFFER (*name of the Captain*) führend das (*Flag*), Schiff (*name of the Vessel*), kommend von (*Port*), hat bei hiesiger Zoll Stätte sein Schiff durch Abgabe von (*quantity of Bills of Lading and Cockets*) clarirt, und wird hiemit angewiesen, sich nach der Ankunft zu { Hamburg }  
Altona }  
bei dem Königlich Hannoverschen Elbzoll-Comtoir in Hamburg zu melden und fernere Abfertigung zu gewärtigen.

Brunshausen, den      ten      1858.  
Königlich Hannoversches Wachtschiffs-Zoll-Comtoir.

(Signature.)

(No. 2.)

CERTIFICATE granting Permission to Discharge.

LÖSCHUNGSSCHEIN.

SCHIFFER, *T. Atkinson*, hat die Ankunft seines Schiffs, *Lord Cardigan*, kommend von *Hull*, bei dem hiesigen Königlich Hannoverschen Elb-Zoll-Comtoir angezeigt und wird ihm, mit Vorbehalt der weiteren Abfertigung, die Ausladung gestattet.

Hamburg, den 16ten April 1858.  
Königlich Hannoversches Elb-Zoll-Comtoir.

(Signature.)

(No. 3.)

RECEIPT required on getting the Papers delivered at Stade by the Vessel, and then returned to us, by which we give Bail for the Amount of the Stade Duty on the Cargo.

Für das *Englische* Schiff *Lord Cardigan*, Capt. *J. Atkinson*, habe ich, im Auftrage des letzteren, die zu Brunshausen am (*date of delivery*) übergebenen Schiffs und Ladungspapiere vollständig ausgehändigt erhalten, ohne dass der Brunshauser Zoll für die Ladung jenes Schiffes bis jetzt bezahlt worden ist.

Hamburg, den 18 .

*Kirsten.*

(No. 4.)

SKETCH of the Content Zettel required to be delivered up to the Hanoverian Custom-house in Hamburg.

Vollständige Angabe

der Ladung des Schiffers  
mit seinem Schiffe, genannt :  
unter

, welcher

Flagge von  
gekommen ist.

Namen der Empfänger.	Bezeichnung der Waaren.
Hamburg, den            ten Hamb. No. Brunsh. No.	Aufgestellt von mir dem Schiffsmakler
18	

Appendix, No. 4.

(No. 5.)

STADE PASS which must be delivered at Stade on the Vessel repassing.

*Nota.* Dieser Retourschein wird zu Bruns-  
hausen in dem Königlichen Zoll-Wachgebäude  
unentgeltlich, von der auf Verlangen heranru-  
fernden Königlichen Boosmannschaft aber nur  
neben Entrichtung der gesetzlichen Gebühr für  
diese Hülfeleistung, welche von Schiffen über  
15 Last 6 Ggr. von kleineren Schiffen 3 Ggr.  
beträgt, entgegengenommen. Cfr. §§ 6 und 7  
des Regulativs.

Retourschein.

No.

Dass der (*Flag*), Schiffer (*name of the Captain*), welcher von  
(*name of Port*), kommend, mit seinem Schiffe genannt (*name of  
the Vessel*), die Königliche Zollstätte zu Brinshausen am (*date*)  
Elbaufwärts passirt hat, seinen Verpflichtungen wegen des Bruns-  
hauser Zolls Genüge geleistet habe, mithin gegen Abgabe dieses  
Retourscheins bei dem am Ausflusse der Schwinge erbaueten  
Wachtschiffs-Comptoir die Zolllinie unaufgehalten repassiren könne,  
wird hiemit bescheinigt.

Hamburg, den      ten      185

Königlich Hannoversches Elbzoll Comtoir

(Signature)

Appendix, No. 5.

Appendix, No. 5.

PAPERS delivered in by *August Sanders, Esq.*, and referred to in his Evidence,  
18 June 1858.

TABLE showing the progress of Shipping under Hamburg Flag during the period of  
1842 to 1857. Referred to in Question 988.

At the End of the Year	Number of Ships.	Tonnage.	Increase from 1842.
1842   -   -	214	51,819	—
1845   -   -	223	57,069	10 per cent.
1848   -   -	257	71,691	38    „
1851   -   -	351	103,899	101    „
1854   -   -	456	159,867	209    „
1857   -   -	491	191,244	269    „

TABLE showing the Value of the IMPORTS from *Great Britain and Ireland*, and also the Value of the TOTAL IMPORTS by Sea to *Hamburg*, in the Years 1856 and 1857, Bullion excluded. Referred to in Question 1003.

	1856.	1857.
	<i>Bancomarks.</i>	<i>Bancomarks.</i>
A. Produce and Manufactures of the United Kingdom - -	119,206,670	115,889,260
B. Other Goods - - -	43,793,650	44,120,750
TOTAL - - -	163,000,320	160,010,010

TOTAL DECREASE in 1857 - - - - - *Bancomarks.*  
- 2,990,310

DECREASE in British Produce and Manufactures - - 3,317,410

	1856.	1857.
	<i>Bancomarks.</i>	<i>Bancomarks.</i>
TOTAL IMPORT by Sea to Hamburg, bullion excluded -	272,768,560	278,541,880

INCREASE in 1857 - - - - - *Bancomarks.*  
- 5,773,320



Number of the Tariff Head.	DENOMINATION OF THE GOODS.	Unity to which the Duty applies.	Duty Rate, Standard of 14 th. to the Mark.	—
7	Colonial Produce, &c. ( <i>continued</i> ).		<i>th. g-gr. pf.</i>	<i>s. d.</i>
	<i>b.</i> Currants, raisins, and figs; also caked figs - - -	100 lb.	- - 6	- - $\frac{3}{4}$
	<i>c.</i> Capers, almonds, and olives - - -	"	- 1 6	- 2 $\frac{1}{2}$
	H. Treacle and syrup; also potato syrup, and beet-root molasses	"	- - 3	- - $\frac{3}{8}$
	I. Tobacco, and manufactures of tobacco:			
	<i>a.</i> Tobacco in leaves, stalks, and heads; also tobacco flour, and tobacco waste.	"	- - 6	- - $\frac{3}{4}$
	<i>b.</i> Manufactures of tobacco:			
	<i>i.</i> Tobacco in rolls; also shag and cut tobacco, &c.; also snuff (rappee and carrots).	"	- 1 -	- 1 $\frac{1}{2}$
	<i>ii.</i> Cigars - - -	"	- 5 -	- 7 $\frac{1}{2}$
	K. Tea and tea-dust - - -	"	- 5 -	- 7 $\frac{1}{2}$
	L. Sugar:			
	<i>a.</i> Sugar in loaves, cassonade, white crushed sugar, clayed sugar, bastard, lump sugar, &c.	"	- - 10	- - $\frac{5}{8}$
	<i>b.</i> Raw sugar - - -	"	- - 5	- - $\frac{5}{16}$
8	Drugs, apothecaries' and drysaltory goods; also similar raw stuffs and manufactures.			
	A. All articles not otherwise enumerated under the several heads from B to K, as copaiva, and muskat balsam, amber, ink, dried herbs, plants, blossoms, roots, &c.; herb tobacco, tea of medicinal herbs, spermaceti, stearine, &c.	"	- 1 6	- 2 $\frac{1}{4}$
	B. Cocoa nuts, bone, ivory, coal, and lamp black, soda wood, vitriol stone, common resin, galipot, and colophony - -	"	- - 1	- - $\frac{1}{8}$
	C. Fustic, and logwood; vitriol, and juniper berries - - -	"	- - 2	- - $\frac{1}{4}$
	D. Alum, red ochre (English, Dutch, Prussian, and Venetian red, colcothar, and caput mortuum), Iceland moss, quercitron, sulphur, soda, shumac, and sulphuric acid.	"	- - 3	- - $\frac{3}{8}$
	E. Catechu, or terra japonica, turmeric, red woods, muriatic acid, sassafras wood, flowers of sulphur.	"	- - 4	- - $\frac{1}{2}$
	F. White lead, yellow lead, minium, and other lead colours, chloride of lime, dry and fluid; citron and lemon juice, pearl, pot, and wood ashes, horn and horn tips, acorn galls or valonea, mineral waters, licorice, turpentine, train-oil; also whale and seal blubber, woad and weld.	"	- - 6	- - $\frac{1}{2}$
	G. Aloes and aloe leaves, Peruvian bark, flea wort ( <i>semen psyllii</i> ), lac (seed, stick, and shell) and varnish, juice of licorice, glue, annotto, mother of pearl, sal ammoniac, nitric acid and aqua-fortis, tamarinds, Tonquin beans, and argol of all kinds.	"	- 1 -	- 1 $\frac{1}{2}$
	H. Dyewood extracts, and verdigris.	"	- 2 -	- 3
	I. Caouchouc, or India rubber, whalebone (also cut, and in rods), Bremen and Brunswick green, lac dye, manna, and senna leaves.	"	- 3 -	- 4 $\frac{1}{2}$
	K. Balsams of all kinds, except copaiva, and muskat balsam; fine blue colours, namely: Mountain, Berlin and English blue; smalts, camphire, carmine, chrome yellow, chrome green, and other crome colours; cochineal, ivory, indigo, musk or civet, rhubarb, tortoise-shell, Indian ink, cinnabar. Remark.—1. Oil. See head 35. 2. Fresh plants, herbs, blossoms, roots, &c. See in the specification of duty-free goods. 3. Colour earths (chalk, ochre, &c.) See Head 10.	"	- 5 -	- 7 $\frac{1}{2}$
9	Iron and steel, and articles thereof.			
	A. Iron and steel:			
	<i>a.</i> Forged, cast, and rolled iron, in bars, plates, sheets, &c.; also lump iron, and rails for railroads; also raw, cement, cast, and refined steel; also wheel-rim iron, and iron roughly prepared by the forge for coarse parts of machines and carriages (cranks, axles, &c.)	"	- - 3	- - $\frac{1}{8}$
	<i>b.</i> Raw iron of all kinds, and old broken iron - - -	"	- - 1	- - $\frac{1}{8}$
	<i>c.</i> Tin plates - - -	"	- 1 -	- 1 $\frac{1}{2}$



Number of the Tariff Head.	DENOMINATION OF THE GOODS.	Unity to which the Duty applies.	Duty Rate, Standard of 14 th. to the Mark.	—
9	Iron and Steel, and articles thereof ( <i>continued</i> ). B. Iron and steel wares: a. Surgical instruments, cutlery, sword and gunmaker's wares, needles, and needle-makers' wares, and other fine sorts of hardware; also articles of sheet iron. b. Anchors and chain cables; also quite coarse cast-iron articles, as anvils, weights, railings, palisades, pipes, grates, pots, pans, kettles, mortars, stoves, cannons, and gun-carriages, &c. c. Iron and steel wire, coarse articles of iron or steel; also the like in combination with wood or leather, and blacksmiths' goods of all kinds, as axes, bedsteads, window bars, heating apparatus, and their appurtenances, pitchforks, horse-shoes, chains (exclusive of chain cables), chests, carriage and cart springs, saws, shovels, vices, screw bolts, scythes, sickles, currycombs, bay and straw knives, door furniture, wafer iron, sugar nippers, bill hooks, &c.; also cast and forged nails, and buttons. Remark.—Machines of iron. <i>See</i> Head 31.	100 lb. " "	th. g. gr. pf. - 2 - - - 3 - 1 -	s. d. - 3 - - 3 - 1 ½
10	Earths and ores, not otherwise particularly enumerated. Earths: Pumice, colour earths (bole, chalk, ochre, red chalk, sienna earth, &c.), porcelain, and sugar baker's clay, potter's and pipe clay, fuller's earth, and the like; also Ores: Orpiment, and other arsenic ores, potter's ore, and other lead ores, manganese, calamine stone, emery, amaril and Tripoli (raw as well as ground), plumbago, &c. Remark.—Gypsum (raw), clay, marl, sand, regulus of cobalt, and dross of ore. <i>See</i> in the specification of duty-free goods.	"	- - 1	- - ½
11	Earthenware. A. All not otherwise rated, as Delft ware, stone ware, earthen tobacco pipes, articles of gypsum, and meerschaum. B. Common pottery of all kinds, crucibles, and marbles (for children). C. China (porcelain). Remark.—Articles of gypsum and meerschaum, in combination with precious metals, &c. <i>See</i> Head 27.	" " "	- - 6 - - 3 - 5 -	- - ½ - - ½ - 7 ½
12	Feathers: Common bed feathers; also down and eider down, and quills.	"	- 5 -	- 7 ½
13	Hides and Skins. A. Hides for tanning. a. Salted. - - - - - b. Dried. - - - - - B. Skins (in hair) for furs, including hare and coney skins, lamb, sheep, and goat skins in hair, monkey, badger, seal, zebra skins, &c.; also tails and tips of such skins.	" " "	- - 5 - - 10 - 2 -	- - ½ - 1 ½ - 3
14	Fish and shell-fish. A. Fish: a. Salted (exclusive of herrings), dried, and pickled - - b. Herrings - - - - - Remark.—Living and fresh fish. <i>See</i> under the duty-free objects. B. Oysters and muscles (also marinated and pickled) - - Remark.—Lobsters and crabs. <i>See</i> under the duty-free objects.	" " " "	- - 6 - - 2 - 1 -	- - ½ - - ½ - 1 ½
15	Meat, tallow, and grease; also lard, hams, sausages and venison - Remark.—1. Seal and whale-blubber. <i>See</i> Head 8 F. 2. Poultry and small game. <i>See</i> under duty-free objects.	"	- - 9	- 1 ½

No. of the Tariff Head.	DENOMINATION OF THE GOODS.	Unity to which the Duty applies.	Duty Rate, Standard of 14th. to the Mark.	—
16	Garden Produce (Fruits, &c.)		<i>th. g-gr. pf.</i>	<i>s. d.</i>
	A. Dried or baked fruits (exclusive of plums): also inspissated fruits (jam) and inspissated berries, nuts (walnuts, hazel, &c.), grapes, and pineapples.	100 lb.	- - 9	- 1 $\frac{1}{2}$
	B. Dried plums - - - - -	"	- - 6	- - $\frac{1}{2}$
	Remark.—Vegetables, cabbages, edible roots, fresh fruits, as melons, cucumbers, gourds, and the like. See under duty-free objects.			
17	Grain and pulse; also malt - - - - -	"	- - 1	- - $\frac{1}{2}$
	Remark.—Grain in sheaves, and green or not thrashed pulse. See under duty-free objects.			
18	Glass and articles of glass.			
	A. All kinds of glass not comprehended under the following head B; also article of glass in combination with common metals.	"	- - 9	- 1 $\frac{1}{2}$
	B. Green and other coloured common hollow articles of glass; also bottles, covered with basket-work, of such glass.	"	- - 4	- - $\frac{1}{2}$
	Remark.—Articles of glass in combination with precious metals, &c.; also imitations of precious stones. See Head 27.			
19	Gold, silver, and platina, coined, in bars, and broken - - -	{ 7 <i>h.</i> 1,600 } value. }	1 - -	3 <i>s.</i> per 240 <i>l.</i>
	Remark.—Plate, wire, and manufactured goods of precious metals. See Head 27.			
20	Hair, and articles thereof.			
	A. Goat's (Angora), hare's, coney's, doe, and horse hair, hog's hair and bristles; also hair mattresses and other stuffed articles not combined with leather.	100 lb.	- 2 -	- 3
	B. Cow hair - - - - -	"	- - 6	- - $\frac{1}{2}$
	Remark.—1. Span filaments of hair. See Head 42 C. and D. 2. Wigmakers' goods. See Head 27.			
21	Wood, and articles of wood.			
	A. Wood:			
	a. Wood and timber - - - - -	"	- - 1	- - $\frac{1}{2}$
	b. Wood for joiners and turners grown out of Europe, as ebony, jacaranda, mahogany, pockwood, &c., and box-wood.	"	- - 3	- - $\frac{1}{2}$
	c. Corkwood - - - - -	"	- 1 -	- 1 $\frac{1}{2}$
	Remark.—Firewood, under and brush wood; also willow twigs. See under the duty-free objects.			
	B. Articles of wood:			
	a. Japanned, painted, stained, polished, veneered, &c., turners' and joiners' articles, bronzed wood, black-lead pencils; also cut corks, cork soles, and other articles of cork.	"	- 3 -	- 4 $\frac{1}{2}$
	b. Raw (only planed) coopers', turners', joiners', and wheelwrights' articles; also the like in combination with iron, leather, copper, or brass; also basket-makers' goods of all kinds.	"	- - 9	- 1 $\frac{1}{2}$
	Remark.—1. Machines, parts of machines, and models in wood. See Head 31. 2. Articles of wood in combination with precious metals, mother-of-pearl, ivory, &c. See Head 27. 3. Used household furniture, &c., and empty casks. See under duty-free objects. 4. Vessels. See under duty-free objects.			
22	Hops - - - - -	"	- 1 -	- 1 $\frac{1}{2}$

No. of the Tariff Head.	DENOMINATION OF THE GOODS.	Unity to which the Duty applies.	Duty Rate, Standard of 14th. to the Mark.	—
			<i>th. g. gr. pf.</i>	<i>s. d.</i>
23	Horn and bone wares; also plates of horn or bone - - - - Remark.—1. Bones. <i>See</i> under duty-free objects. 2. Horn and horn tips. <i>See</i> Head 8 F. 3. Whalebone. <i>See</i> Head 8. I. 4. Ivory, tortoiseshell. <i>See</i> Head 8 K. 5. Articles of horn and bone in combination with precious metals or mother-of-pearl; also articles of ivory, whalebone, tortoise- shell, &c. <i>See</i> Head 27.	100 lb.	- 2 -	- 3
24	Instruments, astronomical, mathematical, mechanical, musical, optical, physical, without regard to the materials from which they are manufactured. Remark.—1. Surgical instruments. <i>See</i> Head 9 B a. 2. Machines, &c. <i>See</i> Head 31.	"	- 5 -	- 7 ½
25	Teasels - - - - -	"	- 1 6	- 2 ½
26	Copper and brass, and similar compound metals, and manufactures thereof. A. Copper, brass, britannia metal, German silver, and the like : a. Forged, rolled, cast, for utensils; also copper, &c., basins in forms as they come from the hammer, plates, roofing plates, wire, and polished, rolled, and plated sheets and plates. b. Raw copper in cakes and pigs, unwrought brass, old broken copper or broken brass, copper and brass filings, bell-metal, and copper coin. B. Manufactured articles, such as kettles, pans, &c., of copper, or the above-mentioned compound metals, or of copper, brass, &c., plate; also brass and bell-founders' wares.	" " " "	- 2 - - 1 6 - 5 -	- 3 - 2 ½ - 7 ½
27	Hardware, fancy articles (quincaille, bijouterie, &c.), namely :— Corals, pearls, real and imitated gems; also cut agates, carnelians, and the like ordinary ornamental stones (set or unset), goods wholly or in part of precious metals, or inlaid with precious metals, of bronze (coated with real gilding), amber, ivory, whalebone, mother-of-pearl, or tortoiseshell; also goods of the before-named materials in combination with alabaster, gypsum, glass, wood, horn, bone, cork, lac, leather, marble, meerschaum, false stones, &c., filigree articles, fine perfumeries in small bottles, &c., for the fancy trade, and as fancy articles, watches, table and pendulum clocks, chandeliers, bronzed, plated, or gilded; umbrellas and parasols, fans, artificial flowers, orna- mental feathers, wigmakers' articles, and in general all goods belonging to the class of hardware, bijouterie, jewellery, quin- caille, or fancy articles not rated lower; also goods of spun filaments of cotton, linen, silk, wool, &c., which are combined with iron, glass, wood, leather, metallic threads (plate wire), brass, steel, straw, &c., as caps of cloth or stuff in combina- tion with leather, buttons with wooden moulds, bell-ropes, &c.	"	- 5 -	- 7 ½
28	Husbandry produce, of cows, bees, &c. A. Honey and cheese - - - - - B. Butter - - - - - C. Wax - - - - - Remark.—Eggs and milk. <i>See</i> under the duty-free objects.	" " "	- - 6 - - 10 - 3 -	- - ¾ - 1 ¼ - 4 ½
29	Leather, articles of leather and similar manufactures. A. Leather of all kinds; also tanned hides and parchment - B. Articles of leather without distinction, shoemakers', saddlers', pouchmakers', glovers' goods, &c.; also goods of varnished leather or of parchment; also of caoutchouc, as balls, shoes, and other articles thereof; catgut; gold-beaters' skin, and goods thereof.	" "	- 2 6 - 5 -	- 3 ½ - 7 ½
30	Candles. A. Spermaceti, stearine, wax candles, &c.; also wax tapers, wax torches, and the like. B. Tallow candles - - - - -	" "	- 5 - - 1 -	- 7 ½ - 1 ½
31	Machines, parts of machines, and models, of wood, iron, or other materials, either singly or together.	"	- 1 -	- 1 ½

Number of the Tariff Head.	DENOMINATION OF THE GOODS.	Unity to which the Duty applies.	Duty Rate, Standard of 14 th. to the Mark.	—
32	Metals, not otherwise enumerated.		<i>th. g. gr. pf.</i>	<i>s. d.</i>
	A. Antimony, arsenic, bismuth, and other extracted metals (in contradistinction to metallic ores), which are not included under Heads 1, 9, 19, 26, 46, and 47.	100 lb.	- - 8	- 1
	B. Mercury - - - - -	"	- 5 -	- 7 ½
33	Meal and bread.			
	A. Peeled barley, grits, groats, flour; also dough, and articles of dough, as bread, ship's biscuits, &c.	"	- - 4	- - ½
	B. Amidon or starch, vermicelli, macaroni, paste, &c.; also powder.	"	- - 6	- - ¾
	Remark.—Pastry (confitures, &c.) See Head 7, C. a.			
34	Natural curiosities and antiquities.			
	Shells, fossils, insects, animals, stuffed or preserved in spirits; also mummies, and other objects destined for collection.	"	- 1 6	- 2 ½
35	Oil.			
	A. All sorts, not otherwise rated, as olive, cocoa-nut, hemp, linseed, almond, rape, castor, colza, turpentine, oil, &c.	"	- - 9	- 1 ½
	B. Palm oil - - - - -	"	- - 6	- - ¾
	C. Fine volatile and perfumery oils, as anniseed, bergamot, cassia, cedar, clove, peppermint oil, &c.	"	- 5 -	- 7 ½
36	Paper and pasteboard, and articles thereof.			
	A. Paper and pasteboard :			
	a. White, coloured, pressed, painted paper of all kinds; printing and blotting paper, and packing paper and pasteboard.	"	- 2 -	- 3 .
	Remark.—Waste paper and manuscript. See under the duty-free objects.			
	B. Articles of paper and pasteboard, paper hangings, bookbinders' and cartonnage or pasteboard work; also articles of papier-maché.	"	- 5 -	- 7 ½
37	Pitch and tar, &c.			
	A. Pitch (common and depurated), tar (mineral and other); also links, and the like.	"	- - 2	- - ¼
	B. Asphaltum - - - - -	"	- - 6	- - ¾
38	Fur (made-up articles of furriers of all kinds) - - - -	"	- 5 -	- 7 ½
	Remark.—Skins, to be used for making furs. See Head 13, B.			
39	Salt and saltpetre.			
	A. Common sea and rock salt; also salt for manure - - -	"	- - 1	- - ½
	B. Saltpetre - - - - -	"	- - 6	- - ¾
40	Seeds.			
	A. All seeds, not otherwise rated, as canary, sainfoin, hemp, forest, clover, lucerne, mustard seed and flour, poppy, meadow seed, &c.	"	- 1 -	- 1 ½
	B. Linseed, gold of pleasure seed, rape, and colza seed - -	"	- - 3	- - ¾
41	Soap of all kinds - - - - -	"	- - 8	- 1
42	Materials for spinning, spun filaments, and woven manufactures.			
	A. Materials for spinning :			
	a. All not otherwise rated, as lambs' and sheep's wool -	"	- 1 6	- 2 ½
	b. Cotton, flax, and hemp - - - - -	"	- - 9	- 1 ½
	c. Silk, raw and prepared - - - - -	"	- 5 -	- 7 ½
	Remark.—Hair (goats' hair, &c.) See Head 20, A.			
	B. Ropemakers' articles (cordage, twine, &c.) - - - -	"	- - 8	- 1
	Remark.—Old ropes. See under duty-free objects.			
	C. Yarn and thread, not otherwise rated, as—			
	a. Yarn and thread of wool or hair; also of wool or hair mixed with cotton, flax, or hemp	"	- 2 -	- 3
	b. Tow yarn - - - - -	"	- - 8	- 1
	c. Yarn and thread of cotton, flax, or hemp - - - -	"	- 1 -	- 1 ½
	d. Yarn and thread of silk, or of silk mixed with other materials.	"	- 5 -	- 7 ½

Number of the Tariff Head.	DENOMINATION OF THE GOODS.	Unity to which the Duty applies.	Duty Rate, Standard of 14 th. to the Mark.	—
42	Materials for Spinning, &c.— <i>continued</i> .		<i>th. g. gr. pf.</i>	<i>s. d.</i>
	D. Manufactures, woven:			
	a. Stuff, cloth, textures, haberdashery, lacemakers' goods, millinery, embroidery, lace, hosiery, carpets, and covers; also ready-made new-clothes and linen, articles of felt, oil-cloth, oil-silk, &c.	100 lb.	- 6 -	- 9
	b. Pack, sack, and sail cloth - - - - -	"	- - 8	- 1
43	Articles of stone, as—			
	Goods of alabaster, rock crystal, gypseous spar, marble, and stealite.	"	- 2 -	- 3
	Remark.—1. Raw and cut stones; also marble slabs. See under duty-free objects.			
	2. Gems (diamonds, &c.); also cut ordinary ornamental stones (agate, jasper, &c.); and goods of alabaster and the like, in combination with precious metals, mother-of-pearl, &c. See Head 27.			
44	Straw, cane, bast, &c., and articles thereof.			
	A. Cane for chairs, including the slit cane - - - - -	"	- - 3	- - $\frac{1}{2}$
	B. Walking canes (bamboo, pepper cane, &c.) - - - - -	"	- - 8	- 1
	C. Fine straw and bast platting for hats; also bast, straw, chip, and cane hats.	"	- 5 -	- 7 $\frac{1}{2}$
	Remark.—Rushes, roof-cane, reeds, plait straw, mats, &c. See under duty-free objects.			
45	Articles of wax; busts, figures, masks of wax - - - - -	"	- - 5 -	- 7 $\frac{1}{2}$
	Remark.—1. Wax. See Head 28, E.			
	2. Wax candles. See Head 30, A.			
	3. Oil-cloth, &c. See Head 42, D, a.			
	4. Collections of wax figures. See under duty-free objects.			
46	Zinc, and articles of zinc.			
	A. Calamine and tutty (tutia) - - - - -	"	- - 1	- - $\frac{1}{2}$
	B. Raw zinc and zinc plates - - - - -	"	- - 6	- - $\frac{1}{2}$
	C. Manufactured articles of zinc; also japanned ditto - -	"	- 1 -	
47	Tin, and tin wares.			
	A. Tin in bars, blocks, &c.; also old tin - - - - -	"	- 1 6	- 2 $\frac{1}{2}$
	B. Manufactured articles of tin; also japanned articles of tin -	"	- 3 -	- 4 $\frac{1}{2}$
	<p><i>Note.</i>—Upon goods entered under a denomination so general that various heads of the Tariff answer to it, the highest duty levied under such heads may be charged; but the importer is empowered by Section 11, No. 1, of the Tariff regulations to institute a claim, by means of which he can cause that rate of duty only to be levied on the goods in question, which is payable according to the most explicit of such specifications.</p>			

(No. 2.)

AMOUNTS of FREIGHT and STADE TOLL paid on sundry Articles shipped on board of British Vessels from  
*Hull to Hamburg.*

ARTICLES.	WEIGHT.	Measure.	Rate of Freight.	Amount of Freight.	Amount of Stade Toll.	Per-centage Proportion of the Stade Toll to the Freight.
	<i>Lbs.</i>	<i>Feet.</i>		<i>£. s. d.</i>	<i>£. s. d.</i>	
1 Bale spun silk - -	200	10		- 1 1	- 1 3	115·4 per cent.
	<i>Cwts. qrs. lbs.</i>					
1 Bale cotton goods - -	4 1 22	16		- 1 8	- 2 4 ½	142·5 "
1 Bale woollen goods - -	1 1 8	10		- 1 1	- - 9	69·2 "
1 Bale carpets - - -	3 2 20	28		- 2 11	- 3 -	102·9 "
1 Case linen - - -	3 0 18	9		- 1 -	- 1 7 ½	162·5 "
	<i>Lbs.</i>		1 d. per foot, and 25 per cent.			
1 Bale woollen yarn - -	1,200	52		- 5 5	- 2 -	36·9 "
1 Bale linen yarn - -	1,462	65		- 6 9	- 1 2 ½	17·7 "
1 Bale linen thread - -	371	27		- 2 10	- - 3 ½	11·0 "
1 Bale cotton yarn - -	1,200	52		- 5 5	- 1 -	18·5 "
	<i>Cwts. qrs. lbs.</i>					
1 Case hardwares - -	2 3 6	16		- 1 8	- - 3	15·0 "
1 Cask glasswares - -	3 0 16	8		- - 10	- - 3 ½	37·5 "
	<i>Lbs.</i>					
1 Case cardings - -	51	8		- - 10	- - 1 ½	15·0 "
	<i>Cwts.</i>		12 s. 6 d. per ton, & 25 per cent.			
1 Cask earthenware - -	9	- -		- 6 3	- - 4 ½	6·0 "
51 Cases yellow metal -	256	- -		10 - -	2 7 10	23·5 "
	<i>Cwts. qrs. lbs.</i>					
5 Bundles steel - -	5 3 24	- -		- 5 7	- - 2 ½	3·7 "
	<i>Tons. cwts. q. lbs.</i>		10 s. per ton -			
766 Iron bars - - -	38 10 2 24	- -		19 6 3	1 7 -	7·0 "
	<i>Cwts. qrs. lbs.</i>					
5 Cases machinery - -	88 0 1	- -		4 8 -	- 11 1	12·6 "
9 Casks linseed oil - -	117 3 0	- -		5 17 9	- 10 6	8·9 "

(No. 3.)

STATEMENT of Amounts of STADE TOLL paid on Cargoes that have arrived exclusively at *Hamburg*, from *Great Britain* and *British Possessions*, during the Ten Years 1846-55.

YEAR.	VESSELS.	TONNAGE.		AMOUNT OF STADE TOLL.			AVERAGE AMOUNT OF STADE TOLL			
		Hamburg Commerz Last.*	British Tons.*	Prussian Dollars.	†£. s. d.		Per Cargo.		Per 100 British Tons.	
							Prussian Dollars.	†£. s. d.	Prussian Dollars.	†£. s. d.
1846	1,413	102,287	292,249	86,571 2 5	12,985 13 4		61 6 5	9 3 10	29 12 4	4 8 10
1847	1,744	122,169	349,055	97,359 17 4	14,608 19 2		55 19 10	8 7 6	27 18 8	4 3 8
1848	1,524	120,432	344,091	83,882 19 -	12,582 8 5		55 1 -	8 5 1	24 7 4	3 13 2
1849	1,503	114,408	326,890	87,899 9 8	13,184 18 3		58 11 7	8 15 5	26 17 8	4 - 8
1850	1,821	147,731	422,089	105,221 - 2	15,788 3 -		57 18 9	8 13 4	25 - 1	3 14 9
1851	1,749	146,872	419,634	110,234 13 7	16,535 3 8		63 - 8	9 9 1	26 9 4	3 18 10
1852	1,813	160,778	459,366	116,846 20 2	17,527 - 6		64 10 9	9 13 4	25 8 4	3 16 4
1853	1,526	135,340	386,685	114,866 14 3	17,229 19 9		75 6 7	11 5 10	29 20 8	4 9 1
1854	1,754	158,281	452,231	130,136 3 -	19,520 8 5		74 4 8	11 2 7	28 19 8	4 6 4
1855	1,887	179,158	511,880	152,426 6 11	22,863 18 10		80 18 8	12 2 4	29 20 8	4 9 4
Vessels -	16,734									
Hamburg Commerz Last	-	1,387,456								
British Tons - - -			3,964,160							
Amount of Stade Toll			Prussian Dollars	1,085,444 10 6	£. 162,816 13 4					
				Per Cargo - - -	Pr. C.	64 10 9	£. 9 14 7			
				Average Amount of Stade Toll	Per 100 British Tons - - - - -	Prussian Dollars	27 10 4	£. 4 2 2		

\* Commerz Last, 6,000 lb.; Ton, 2,100 lb. † Rate of Exchange, Prussian Dollars; 6 2/3 per £.

STATEMENT of Particulars as to the above Vessels.

1. VESSELS LADEN WITH GENERAL CARGOES.										2. VESSELS LADEN WITH COALS AND CINDERS AND COKE.															
YEAR.	Vessels.	Tons.	Amount of Stade Toll.	Average Amount						YEAR.	Vessels.	Tons.	Amount of Stade Toll.	Average Amount											
				Per Cargo.			Per 100 Tons.							Per Cargo.			Per 100 Tons.								
			£.	s.	d.	£.	s.	d.	£.	s.	d.				£.	s.	d.	£.	s.	d.					
1846	-	719	158,526	10,925	13	2	15	3	11	6	17	10	1846	-	694	133,723	2,060	-	2	2	19	4	1	10	10
1847	-	881	193,461	12,258	16	2	13	18	4	6	6	9	1847	-	863	155,594	2,345	3	-	2	14	4	1	10	2
1848	-	640	164,317	9,888	8	9	15	9	-	6	-	4	1848	-	884	179,774	2,693	19	8	3	-	-	1	10	-
1849	-	608	162,254	10,737	14	11	17	13	3	6	12	4	1849	-	895	164,626	2,447	3	3	2	14	8	1	9	9
1850	-	774	223,061	12,688	11	9	16	7	10	5	13	9	1850	-	1,047	199,028	3,094	11	5	2	19	1	1	11	1
1851	-	775	222,700	13,519	7	5	17	8	11	6	1	5	1851	-	974	196,934	3,015	16	4	3	1	11	1	10	8
1852	-	850	253,052	14,313	7	3	16	13	3	5	13	2	1852	-	954	206,314	3,213	13	4	3	7	4	1	11	2
1853	-	693	213,956	14,496	11	3	20	18	4	6	15	6	1853	-	833	172,729	2,733	8	6	3	5	8	1	11	8
1854	-	845	280,668	16,846	2	6	19	18	9	6	-	1	1854	-	909	171,563	2,674	5	10	2	18	10	1	11	2
1855	-	799	265,451	19,001	7	8	23	15	8	7	3	2	1855	-	1,088	246,429	3,862	11	2	3	11	-	1	11	4
Vessels	-	7,593											Vessels	-	9,141										
Tonnage	-	2,137,446											Tonnage	-	1,826,714										
Amount of Stade Toll	-	£.	134,676	-	10								Amount of Stade Toll	-	£.	28,140	12	6							
				Per Cargo			-	-	£.	17	14	9					Per Cargo			-	-	£.	3	1	7
Average Amount				Per 100 Tons			-	-	£.	6	6	-	Average Amount				Per 100 Tons			-	-	£.	1	10	10

(No. 4.)

STATEMENT of Amounts of STADE TOLL paid on Cargoes that have arrived exclusively at *Hamburg* from different Countries (inclusive of *Great Britain* and *British Possessions*) in Vessels under the *British Flag* during the 10 Years 1846 to 1855.

YEAR.	VESSELS.	TONNAGE.		AMOUNT OF STADE TOLL.		AVERAGE AMOUNT OF STADE TOLL		
		Hamburg Commer. Last.*	British Tons.*	† Prussian Dollars.	£. s. d.	Prussian Dollars.	† £. s. d.	Per 100 British Tons.
1846	-	970	237,654	65,981 23 -	9,897 6 11	68 - 8	10 4 1	27 18 4
1847	-	1,107	274,874	71,489 22 10	10,723 9 10	64 13 11	9 13 9	26 - 2
1848	-	1,235	306,777	75,719 12 5	11,357 18 7	61 7 6	9 3 11	24 16 4
1849	-	1,108	292,971	75,059 17 7	11,348 19 2	68 6 10	10 4 10	26 17 8
1850	-	1,181	333,143	79,418 1 3	11,912 14 2	67 5 11	10 1 9	23 20 2
1851	-	1,187	331,009	78,990 2 4	11,988 10 4	66 11 1	9 19 5	23 20 -
1852	-	1,333	374,909	88,189 14 4	13,328 8 10	68 3 10	9 18 6	23 12 8
1853	-	1,147	331,686	96,151 19 6	14,422 15 5	83 19 11	12 11 6	28 23 9
1854	-	1,243	381,454	109,393 19 -	16,908 8 4	87 22 10	13 8 10	28 15 10
1855	-	1,547	452,629	130,301 14 11	19,545 4 10	84 5 6	12 12 8	28 18 11
Vessels	-	12,058						
Hamburg Com. Last		1,157,452						
British Tons		-	3,307,006					
Amount of Stade Toll			Prussian Dollars	£.				
			871,125 3 2					
				£.	130,868 15 6			
Average Amount of Stade Toll			Per Cargo	- - - - -	Pr. Rd.	72 5 10	£. 10 16 9	
			Per 100 British Tons	- - - - -	Prussian Dollars			28 8 2
								£. 3 19 -

\* Commer. Last, 6,000 lb. Tons, 2,100 lb.

† Rate of Exchange, Prussian Dollars, 67 per £.







(No. 6.)

Appendix, No. 6. TOTAL NUMBER and TONNAGE of BRITISH VESSELS entered at *Hull* from *Germany* during each of the Years 1830 to 1856.

YEARS.	Number of Vessels.	Tons.	YEARS.	Number of Vessels.	Tons.
1830 - - -	214	30,784	1844 - - -	189	44,327
1831 - - -	151	22,156	1845 - - -	171	42,485
1832 - - -	172	24,602	1846 - - -	169	42,821
1833 - - -	186	25,996	1847 - - -	118	44,416
1834 - - -	215	32,220	1848 - - -	207	61,685
1835 - - -	245	39,443	1849 - - -	153	51,245
1836 - - -	243	45,086	1850 - - -	124	54,150
1837 - - -	228	41,322	1851 - - -	125	46,010
1838 - - -	239	45,336	1852 - - -	140	54,051
1839 - - -	274	53,849	1853 - - -	165	51,047
1840 - - -	267	51,691	1854 - - -	175	53,347
1841 - - -	288	55,979	1855 - - -	182	58,814
1842 - - -	210	41,634	1856 - - -	211	66,276
1843 - - -	207	45,252			

(No. 7.)

TOTAL BRITISH TONNAGE entered at the Port of *Hamburg* in each Year from 1846 to 1856.

YEARS.	Lasts of Three Tons.	YEARS.	Lasts of Three Tons.	—
1846 - - -	84,637	1852 - - -	139,732	Increase, 102 per cent. since 1849.
1847 - - -	98,969	1853 - - -	124,344	
1848 - - -	110,742	1854 - - -	140,427	
1849 - - -	101,697	1855 - - -	162,158	
1850 - - -	119,430	1856 - - -	192,585	
1851 - - -	120,225	1857 - - -	205,401	

TOTAL TONNAGE of *Hamburg* Vessels entered at the Port of *Hamburg* in each Year from 1846 to 1856.

YEARS.	Lasts of Three Tons.	YEARS.	Lasts of Three Tons.	—
1846 - - -	30,441	1852 - - -	61,126	Increase, 248 per cent. since 1849.
1847 - - -	38,648	1853 - - -	46,674	
1848 - - -	28,980	1854 - - -	63,429	
1849 - - -	26,669	1855 - - -	59,549	
1850 - - -	43,827	1856 - - -	61,797	
1851 - - -	53,050	1857 - - -	92,687	

TOTAL FOREIGN TONNAGE (exclusive of *British* and *Hamburg*) entered at the Port of *Hamburg* in each of the Years from 1846 to 1856.

YEARS.	Lasts of Three Tons.	YEARS.	Lasts of Three Tons.	—
1846 - - -	71,942	1852 - - -	79,707	Increase, 99 per cent. since 1849.
1847 - - -	73,013	1853 - - -	76,813	
1848 - - -	58,156	1854 - - -	97,512	
1849 - - -	59,728	1855 - - -	87,295	
1850 - - -	80,275	1856 - - -	116,526	
1851 - - -	74,904	1857 - - -	118,745	

# I N D E X.

[*N. B.*—In this Index the Figures following the Names of the Witnesses refer to the Questions in the Evidence; those following *App. p.* to the Paging of the Appendix; and the Numerals following *Rep. p.* to the Paging of the Report.]

## A.

**ABROGATION OF TREATY.** If the treaty of June 1844 were brought to a termination, Hanover would probably try to revert to the tariff of 1821, as put forward by royal edict, *Wurm* 95-97. 121-124.

In the event of the abrogation of the treaty with this country in June 1844, Hanover would fall back upon the tariff or convention of Dresden, concluded in April 1844, *Hargreaves* 171-175—Way in which the abolition of the treaty of 1844 would have the effect of making this country and the river-bordering States equally liable to full dues instead of to the reduced dues, as under the treaty, *ib.* 218-231. 349-354. 403-428—Impression that if the treaty of 1844 were abrogated, England would not be legally bound by the convention of Dresden, which dealt with the toll as a river toll, *ib.* 429-458—If the treaty of 1844 were renounced, goods of Prussian or German origin introduced in Prussian or German vessels would be liable only to two-thirds of the tolls, but such introduction of goods would never arise, *ib.* 464-474—British goods imported in other vessels would, as a matter of course, pay full dues if the treaty were renounced, *ib.* 464-468.

If the treaty of 1846 were abrogated, England would be in a worse position, as she would be liable to the full duties under the Dresden Convention, *Ward* 1144, 1145. 1178-1184. 1240-1242—This country can terminate the treaty by giving twelve months' notice, *ib.* 1175. 1177—Other States would not forfeit any present advantages if Great Britain were to determine her treaty of 1844 without reference to compensation, *ib.* 1241, 1242.

If the treaty were abolished we should return precisely to the *status quo*, and be in a position to raise the question of the title of Hanover, *Sir J. E. Tennent* 1949-1960—The first step on the part of this country must be to get rid of the treaty of 1844, as an indispensable preliminary to raising the question of title, *ib.* 1998 *et seq.*—Belief that no loss would accrue to this country if notice were given to terminate in twelve months the treaty of 1844; grounds for this conclusion, *ib.* 2024-2026. 2037-2043—If it be decided to determine the treaty, notice should immediately be given, *ib.* 2027-2035—Under any circumstances, the most we could lose by abrogating the treaty would be the reduction of one-third on certain articles, or about 2,666 *l.* a year, *ib.* 2037.

Resolution of the Committee that if the treaty of 1844, by which the United Kingdom is bound for a limited period to assent to the payment of the Stade toll, were determined, by notice pursuant to the terms thereof, but little injury or inconvenience would arise to the trade of this country, *Rep.* iv—Resolution that it is expedient that notice should be given to terminate the treaty, *ib.*

*See also Coals.*

**Altona.** Doubt as to the proportion of the toll which is paid upon goods landed at Altona, *Hargreaves* 361—By an order of the Hanoverian Government in May 1855, when part of a cargo has been landed at Altona, the remainder is still exempt if landed at Harburg, *Sir J. E. Tennent* 1811.

**Amount of the Tolls.** Independently of coals, the tolls average about one-quarter per cent, on the value, *Hargreaves* 265—About 36,000 *l.* a year is derived from the tolls on goods landed at Hamburg, or about 40,000 *l.*, including the amount received at Altona, *ib.* 361—Statement of the different proportions of the toll paid by England and other countries during the years 1839-43, 1846-50, and 1851-55, *ib.* 519, 520.

Hanover realised about 30,000 *l.* a year by the dues, *Glover* 706, 707—Statement showing, in the case of certain articles, the per-centage amount of the tolls in proportion

0.81.

x 3

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*Amount of the Tolls—continued.*

to the value of the goods, *Glover* 708—On the average of the articles imported from England, exclusive of coals, the per-centage of the tolls is about two-ninths per cent., *Sanders* 1103-1105—Hanover receives about 30,000 *l.* a year from the dues, about 15,000 *l.* of which is paid by England, *Ward* 1192-1196.

Reference to a statement prepared from a Hanoverian source, showing the total receipts from the Stade tolls, the expenses, and the net receipts, in each of the years 1834-54, *Sir J. E. Tennent* 1771—In 1834 the net receipts were 22,992 *l.*, and in 1854, 31,029 *l.*, *ib.*

Statement of amounts of Stade toll paid on cargoes that have arrived exclusively at Hamburg in vessels from different countries during the years 1839 to 1843, and the years 1846 to 1850, and 1851 to 1855, and comparison of those amounts received during the five years 1839-43 (prior to the regulation of the tariff of 1844) with those received during the five years 1846-50 and the five years 1851-55 (under the present tariff), *App. p.* 162, 163.

## B.

*Baltic, The.* See *Diversion of Trade.*    *Sound Dues.*    *Stettin.*

*Belgium.* Statement as to Belgium having been more successful in her treaty with Hanover in 1842 than England was in her treaty of 1844, as regards the relative advantages obtained by each country; authority of Dr. Soetbeer, secretary to the Chamber of Commerce in Hanover, quoted as the ground for this statement, *Glover* 841-851.

*Brazil.* The Brazils pay nine per cent. towards the tolls, *Hargreaves* 336.

*Bremen.* The city of Bremen is independent of the Duchy of Bremen, in which Stade is situate, *Wurm* 7—Doubt whether the trade between England and Bremen has increased of late; belief that on this score Bremen is not a dangerous competitor to Hamburg, *Sanders* 1079-1087.

The trade of Bremen has increased considerably of late years; causes of such increase, *Sir J. E. Tennent* 1815, 1816—Table showing the tonnage of British vessels entered and cleared at the port of Bremen in each year 1851-56, *ib.* 1888—Table showing the value of imports and exports into the port of Bremen from and to Great Britain in each of the years 1851-56, *ib.*—Table showing the total tonnage, under all flags, entered and cleared at Bremen in each of the years 1851-56, *ib.*

*Brunshausen.* See *Collection of Tolls.*    *Detention of Vessels.*    *Papers (Payment of Tolls).*

*Bullion.* Bullion pays an *ad valorem* toll of one-sixteenth per cent., *Sanders* 1033.

## C

*Capitalisation.* See *Redemption of Tolls.*

*Cargoes.* Information as to the amount of the toll upon each cargo, and upon each 100 tons; reference to certain returns hereon, distinguishing between cargoes under the British flag and cargoes generally, *Sir J. E. Tennent* 1756-1760, and *App. p.* 162, 163.

The average annual amount of tolls levied on cargoes under the British flag has risen from 3 *l.* 10 *s.* per 100 tons British, in 1847, to 4 *l.* 6 *s.* 4 *d.* in 1855, *Rep. p.* iii.

*Cattle Trade.* The cattle trade of Hull with Hamburg has not been injured by the exemption in the case of Harburg, *Glover* 758-761.

*Chinaware.* On china the tariff charge is about 7½ *d.* per 100 lbs., *Sir J. E. Tennent* 1743.

*Claim of Hanover.* See *Title or Claim of Hanover.*

*Coals.* Particulars in connexion with the toll upon coals; on account of the charge being by weight, it amounts to as much as two and a half per cent. upon the prime cost at Newcastle, *Hargreaves* 263-268, 283, 284, 293, 323—The tolls injuriously affect English coals in so far as the German coals come into competition with them, *ib.* 484-497—The per-centage of the toll on the value is 1.04, *Glover* 708.

Details as to the severe pressure of the tolls in the case of coals imported from England; instances where the per-centage of the tolls upon the value has been considerable, *Sanders* 939-967—The average proportion on the value is calculated at four per cent, *ib.* 940—Instance where the tolls came to nearly eight per cent upon the value, *ib.* 940-947, 956-962—German coals are increasing in competition with English coals, but not for actual consumption at Hamburg, *ib.* 948, 969-973, 1062-1067, 1097, 1098.

The

## Report, 1857-8—continued.

**Coals—continued.**

The Stade tolls tend to prevent the expansion of the British coal trade, and the employment of British colliers; there was in fact a small reduction in 1857 in the quantity exported to Hamburg, whereas, but for these tolls, there most probably would have been a considerable increase, *Sanders* 949. 955, 956. 968-980. 1061 *et seq.*—According to the quantity or weight of the British coals imported, the tolls amount to about 5,500 *l.* a year, *ib.* 1042-1044. 1091, 1092—The per-centage of the tolls in the case of coals is very far beyond the per-centage on the average of goods, *ib.* 1093-1095. 1103-1105—The duty on coals falls on the producer as well as on the consumer, *ib.* 1096, 1097.

The abrogation of the treaty of 1844 would not affect the rate charged for coals, which depends upon the Elbe Convention, *Ward* 1154. 1184. 1197.

Witness is partner in a coal field in the valley of the Ruhr, abutting on the Rhine, *Wood* 1588-1590—Explains the extent of this coal field, the thickness of the coal seams, and the quality of the coal, *ib.* 1589-1593. 1598-1600—There are very extensive beds of ironstone on each side of the Rhine, more especially near Coblenz; this ironstone is of excellent quality, and is taken as a back freight in the coal vessels to the Ruhr Valley, where several iron furnaces have been erected, *ib.* 1594-1599.

Price of working the coal beds in the Ruhr Valley, *Wood* 1600-1603—Great demand for this coal, which fetches 8 *s.* or 9 *s.* a ton at the pit's mouth, *ib.* 1605. 1613, 1613—Means by which the coal from this district is conveyed to different parts of Germany, and enters into competition with English coal, *ib.* 1606-1611—The Ruhr Valley coal does not at present go to Hamburg, *ib.* 1608. 1670-1672.

Magdeburg may be taken as the centre of competition between the English coal and the Ruhr Valley coal, *Wood* 1609-1611—Facilities and cost of the transmission respectively of the English and the Ruhr Valley coal to Magdeburg; the advantages in the latter case are such that the English coal will in time be driven out of Germany to a considerable extent, *ib.* 1610 *et seq.*; 1656, 1657, 1658 *et seq.*—There is at present a large margin for profit on the Ruhr Valley coal, *ib.* 1623, 1624. 1680. 1683—Very little English coal is taken to Harburg, *ib.* 1636—Sailing vessels, as well as screw colliers, take the coal to Hamburg, *ib.* 1637.

Considerable disadvantage to English coal, by reason of the Stade dues, in its competition with the German coal, *Wood* 1638 *et seq.*—The Stade dues are on an average about two and a half per cent. on the value of the coal at Hamburg, but in some instances come to seven per cent. on the value at the place of shipment, *ib.* 1640-1653. 1726, 1727—Transmission of coal from England to Berlin, *via* Stettin, since the abolition of the Sound dues; manufacturing coal is not sent from this country to Berlin, *ib.* 1658-1667—At Hamburg the dues on coals are probably paid entirely by the consumer, but at Magdeburg, &c., where the competition is severe, are paid by the producer, *ib.* 1671-1679.

Much less cost of labour in the Ruhr Valley than in the English coal districts, *Wood* 1690-1692. 1707-1719—Labour in the Ruhr Valley is very little more than half the cost of British labour, *ib.* 1690—Advantage of every facility being given to the export of small coal, or screenings, to Hamburg, though sold comparatively at a loss; it must be burnt if not sold at all, *ib.* 1692-1698. 1720. 1727—Screw colliers have largely superseded sailing colliers, and have led to reduced freights, *ib.* 1723-1725. 1728—Impression that only a small quantity of coal is conveyed from this country to Hamburg in Hamburg vessels, *ib.* 1729-1736.

Explanation as to the amount of the toll in proportion to the value upon coal of different qualities; it is sufficiently high to operate as a considerable discouragement to exports from this country, *Sir J. E. Tennent* 1745—The case of coal is specially provided for by the Dresden Convention, and is one of great peculiarity and great hardship; England in fact has not the power to remonstrate against the charge, *ib.* 1746-1749—The freight on coals is about 7 *s.* 6 *d.* a ton and the toll 3 *d.*, *ib.* 1755—Statement showing that there was an increase in 1856 and 1857 in the quantity of coal exported from this country to Hamburg, as well as to the Hans Towns generally, and to Harburg, *ib.* 1814—An abrogation of the treaty is necessary in order to obtain relief in the case of coals, *ib.* 2038, 2039.

Amount of toll paid on cargoes of coals and cinders and coke imported at Hamburg from Great Britain in the ten years, 1846-55, *App. p.* 160.

Resolution of the Committee that the tax is specially prejudicial to the part of our produce and trade which has to compete in foreign markets with similar articles not subject to tax, and that it is felt sensibly in the coal trade, and particularly in the export of the less valuable descriptions of coal, *Rep. p.* iii.

**Collection of Freight.** There is a delay of about ten days after each vessel has arrived at Hamburg before the accounts from the Stade custom-house are received, which delay creates a corresponding delay and inconvenience in the collection of the freight, *Pratt* 1267-1280. 1490-1506. 1548-1550. 1577, 1578.

**Collection of Tolls.** Way in which the toll is actually collected, *Glover* 626—The obstructions and disputes under the present system are most vexatious, *Ward* 1185-1190—  
0.81. x 4 Inconvenience

*Collection of Tolls*—continued.

Inconvenience to the General Steam Company, on the score of the calculations and system of accounts necessary in the collection of the dues; expense of the process, *Pratt* 1281-1293—Grievance in the system of payment of the dues further adverted to, *ib.* 1577-1578.

See also *Detention of Vessels.*    *Enforcement of Payment.*    *Papers (Payment of Tolls).*

*Commission of 1841.* Witness was engaged on the part of Great Britain upon the commission which sat in 1841, relative to the Stade tolls, *Ward* 1107-1110—Proposed at the commission that one-sixteenth per cent. should be taken as the basis of revision, *ib.* 1110—The two Hanoverian commissioners refused to admit any general basis save the tariff then in force, *ib.* 1110.

Several objections urged subsequently by Hanover to any revision upon the principle of a basis of one-sixteenth per cent., *Ward* 1110—Way in which witness answered the arguments of the Hanoverian Government, and showed that the title of Hanover to anything beyond one-sixteenth per cent. was bad, *ib.* 1111—Witness's views were approved by the British Government, but the Hanoverian Government insisted upon rejecting them, and the consequence was that the commission terminated without coming to any revision, *ib.* 1111-1113.

*Compensation to Hanover.* See *Redemption of Tolls.*

*Competition.* Injurious competition in trade is the principal ground for demanding interference with the Stade tolls, *Glover* 852.

Resolution of the Committee that the tax is specially prejudicial to the part of our produce which has to compete in foreign markets with similar articles not subject to the tax, *Rep. p.* iii.

See also *Coals.*    *Exemptions.*    *Freights.*    *Shipping.*

*Copper.* On manufactured copper the tariff charge is  $7\frac{1}{2}$  d. per 100 lbs., *Sir J. E. Tennent* 1743.

*Cotton.* In the case of bales of cotton goods, the proportion of the toll to the freight from Hull is about 128 per cent., *Glover* 710—Amount respectively of the freight and the Stade tolls in the case of cotton twist from Hull, *Sanders* 896-903—Amount respectively of the freight and of the Stade tolls in the case of manufactured cotton goods; severe pressure of the tolls on such goods, *ib.* 904-920.

## D.

*Detention of Vessels.* The detention at Brunshausen, through the process of paying the tolls, is a source of complaint, *Hargreaves* 143; *Glover* 610—Arrangement between the Hamburg shipbrokers or consignees and the Hanoverian Government, by which the detention at Brunshausen has of late years been almost obviated, *Hargreaves* 201-210—The ship's papers are still sent on shore at Brunshausen and a certificate is required, which occasions some delay and some slight expense, *ib.* 202-205. 277-282. 285-290—The custom-house officers at Hamburg do not cause any undue detention of the vessels, *ib.* 364-368.

The detention at Brunshausen costs each vessel about 1 l., *Glover* 616-621—The entire detention at Brunshausen averages about ten minutes, *ib.* 632-639.

The expense of the detention of the General Steam Company's vessels is about 14 s. for each voyage, *Pratt* 1258—The stoppage in each case does not average more than five minutes, *ib.* 1259-1261.

Escape from detention at Brunshausen by a decree in 1736, by George the Second, as Elector of Hanover, *Sir J. E. Tennent* 2040-2043.

See also *Papers (Payment of Toll).*

*Differential Duty.* The dues operate as a differential charge of from a quarter to two and a half per cent. against British trade, and sometimes more, *Glover* 609.

See also *Exemptions.*

*Diversion of Trade.* If the Stade dues were removed, goods which have diverted by the dues to the Baltic route would again go by the Elbe; circular from some Hamburg merchants adverted to hereon, *Hargreaves* 498-514; and *App. p.* 146-148—Examination upon the question of the Stade dues having the effect of diverting goods from the Hamburg route, and causing them to be discharged at different ports in the Baltic, *Glover* 787-816.

Belief that the diversion of trade from Hamburg to Stettin and Harburg is attributable to other causes than the operation of the Stade toll, *Sir J. E. Tennent* 1790. 1793—  
Railways

## Report, 1857-8—continued.

*Diversion of Trade*—continued.

Railways have had considerable influence in diverting portions of the trade from the Hamburg route, *Sir J. E. Tennent* 1832-1834.

The trade to Harburg, which is free from Stade toll, has risen in a still more striking ratio than the trade of Hamburg; that of Bremen, the Elsfleth toll on the Weser having ceased, and that of Stettin (the Sound dues having been abolished), have also increased in a very large proportion, *Rep.* p. iii.

See also *Hamburg. Harburg. Stettin.*

*Dresden Convention.* See *Riverain Commission.*

## E.

*Earthenware.* On earthenware and pottery the tariff charge is from three-eighths to three-fourths of a penny per 100 lbs. *Sir J. E. Tennent* 1740.

*Elbe, The.* See *Navigation of the Elbe.*

*Elbe-bordering States.* General feeling on the part of the Elbe-bordering States that Hanover has no right to levy the tolls just as she pleases, and that the whole matter should be revised, *Wurm* 97-99—Statement that British commerce has no advantage as regards the dues over the commerce of any of the Elbe-bordering States; nor has it any disadvantages, *Hargreaves* 176-190. 215-217—The reduction as regards the river-bordering States was a voluntary concession subsequent to the treaty with Great Britain, *ib.* 229, 230—It was by a Government decree that the Elbe-bordering States received the same privileges as were obtained by England under the treaty of 1844, *ib.* 382, 383.

See also *Riverain Commission.*

*Elbe-Humber Steam Navigation Company.* Witness is chairman of the Board of Directors of the Elbe-Humber Steam Navigation Company, plying with four vessels between Hull and Hamburg since 1846, *Sanders* 867-874—Some of the shareholders in the company not living within the walls of Hamburg, the cargoes are held to be liable to the Stade dues, though sailing under the Hamburg flag, *ib.* 868-871—Reference to a statement showing that the Elbe-Humber Company paid 4,032*l.* in Stade dues in 1856, and 3,329*l.* in 1857, *ib.* 875-878—The Elbe-Humber Company are about selling their ships to Hamburg citizens, on account of the exemption thereby to be obtained, *ib.* 922.

*Elsfleth Toll.* Particulars as to the compensation given to the Grand Duke of Oldenburg many years ago, in consideration of the abolition of the tolls at Elsfleth on the Weser, *Ward* 1219-1232.

A territorial compensation was given by the German States to the Duke of Oldenburg for the abolition of the Lower Weser toll, *Sir J. E. Tennent* 1818-1822—The Elsfleth toll was analogous in almost every particular to the Stade toll, *ib.* 1816, 1817.

Further evidence relative to the Elsfleth toll and the mode of its redemption; circumstance of Great Britain not having been called upon to join in the compensation, *Sir J. E. Tennent* 1910.

*Enforcement of Payment.* Practical means of Hanover for preventing the passage of vessels unless they pay the toll; she has a battery which commands the navigable channel of the river, *Sir J. E. Tennent* 1946. 2036, 2037.

*Exemptions.* Cargoes belonging to Hamburg citizens are exempt if on board of Hamburg vessels, *Hargreaves* 195-200—The privilege as regards Hamburg citizens amounts to about four per cent., *ib.* 341, 342—Illustration of the way in which the exemption as regards imports by Hamburg citizens in Hamburg ships injuriously affects British shipping; the result has been to increase the quantity of goods carried under the Hamburg flag, and to decrease the quantity carried under the British flag, *Glover* 817-837—The immunity as regards Hamburg ships does not depend in any way upon the treaty of 1844, *ib.* 825-827. 837.

Illustrations of the injurious operation of the tolls as regards British shipping by reason of the exemption accorded to goods imported in Hamburg ships by Hamburg citizens, *Sanders* 921-930. 956—Way in which the question of a ship being the property of Hamburg citizens is settled by Hanover, *ib.* 931-938—The value of the imports exempted by treaty from the tolls is between 400,000*l.* and 500,000*l.* a year, *ib.* 1037-1040—Calculation that about half a million sterling is the value of the goods imported under the Hamburg privilege, *ib.* 1041—The tolls operate as a differential duty in favour of the Hamburg ship, and against the British ship, *ib.* 1045. 1099-1102.

Particulars as to the nature and extent of the competition experienced by witness's company from Hamburg vessels carrying goods belonging to Hamburg citizens, and goods being free from tolls; prejudicial and unfair operation of this exemption, which acts as a differential duty in favour of the Hamburg flag, *Pratt* 1318-1337. 1354 *et seq.*—Forms necessary in the case of Hamburg vessels which claim exemption; check upon fraud or evasion of the dues, *ib.* 1338-1353—Doubt whether the Hamburg vessels



*Exemptions—continued.*

vessels could maintain themselves as at present on the station if the unfair assistance derived by exemption from the dues were withdrawn, *Pratt* 1392-1400. 1466, 1467.

Way in which the exemption from toll in the case of cargoes belonging to Hamburg citizens, and in Hamburg ships, acts prejudicially to British trade, more especially to the Transatlantic trade, *Sir J. E. Tennent*, 1761-1765—The exemption as regards Hamburg citizens presents a most unfavourable contrast with respect to British trade, as compared with the general exemption in the case of Harburg, *ib.* 1813—The disquieting of the trade by the irregularities and exemptions connected with the toll is the main cause of the complaint in this country, *ib.* 1838.

Explanation that the disadvantageous competition with Hamburg vessels refers only to that portion of their cargoes which is the *bonâ fide* property of Hamburg citizens, and which is consigned direct to them, *Sir J. E. Tennent* 1839-1856—Evidence to the effect that goods in transit through Hamburg, when imported by Hamburg citizens, are not exempt from the toll, and that the main proportion of imports by citizens intended for transit pay the toll, *ib.* 1842-1856. 1860 *et seq.*—Declaration necessary by the Hamburg importer in claiming the exemption, *ib.* 1853. 1868. 1875-1879—Means of calculating, by reference to the increase of imports and the increase of toll, that there has been no material increase, if any, of exempted goods, *ib.* 1860, 1861. 1870-1887. 1889-1896.

Goods the property of Hamburg citizens, and carried in Hamburg ships, are exempt from the Stade toll, and British ships are thereby exposed to an unfair competition, *Rep. p.* iii.

See also *Elbe-Humber Steam Navigation Company. Harburg. Shipping.*

## F.

*Foreign Countries.* Proportions in which the several countries pay towards the total amount received by Hanover, *Hargreaves* 336—Explanation as to the decrease in the the proportion paid by the United States and other Transatlantic countries, *ib.* 520. 537-539.

Statement showing the proportion in which cargoes from various countries contributed to the toll in the five years respectively from 1839 to 1843, from 1846 to 1850, and from 1851 to 1856, *Sir J. E. Tennent* 1772. 1775—Similar statement in regard to the proportion paid respectively by British and foreign flags, *ib.* 1772-1775—Causes of the decrease from year to year in the proportion paid by foreign countries, and of the increase in the proportion paid by Great Britain; the extension of railways on the Continent is the main cause, *ib.* 1775-1781.

Amounts paid on cargoes imported at Hamburg in foreign vessels during the years 1839 to 1843, 1846 to 1850, and 1851 to 1855, *App. p.* 162, 163.

Total foreign tonnage (exclusive of British and Hamburg) entered at the port of Hamburg in each of the years from 1846 to 1856, *App. p.* 164.

*France.* French manufactured good are liable to pay full dues instead of two-thirds, as in the case of British manufactures, *Hargreaves* 216—France pays five per cent. towards the tolls, *ib.* 336—Opportunities of France for sending her produce into Germany, &c. by railway, thereby avoiding the Stade tolls, *Sir J. E. Tennent* 1766-1768. 1776. 1779. 1781.

*Freights.* Evidence as to the large per-centage of the tolls in proportion to the freight; in the case of certain exports from Hull the tolls averaged about 2*l.* 10*s.* in proportion to about 4*l.* 5*s.* for freight, *Glover* 657-689. 709-712—Statement that the dues paid by witness's company in 1856 and 1857, amounted to about twenty-five per cent. on the freight; varying proportion respectively of the freight and dues upon different articles adverted to hereon, *Sanders* 886-920—The per-centage of the Stade tolls upon the freight is at the present time about 23  $\frac{1}{2}$  per cent.; witness cannot say what the per-centage is on the value, *Pratt* 1294-1305. 1370.

Freights are now very low on account of the competition; instances of this, *Pratt* 1295. 1317-1337; *Sir J. E. Tennent* 1754—Varying amount of the freight, and varying per-centage of the tolls upon different articles, *Pratt* 1306-1317—The present low rates may be beneficial to the merchants, but the latter would not object to reasonable rates, *ib.* 1402 1408.

Statement showing that the tolls vary very considerably in proportion to the freights, *Sir J. E. Tennent* 1754, 1755—The proportion of the toll to the freight is not so high as that of 2*l.* 10*s.* to 4*l.* 5*s.*, *ib.*—Excepting certain articles where the toll is very high in proportion to the freight, and excepting also coals, where the toll in proportion to the freight is very low, the toll averages about 22*s.* per ton, or ten per cent. on the freight, in the case of the great mass of exports from this country, *ib.* 1755.

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*Freights—continued.*

Particulars of the amounts of freight and Stade tolls paid on sundry articles shipped on board of British vessels from Hull to Hamburg, *App. p. 159.*

Statement by the Committee that the proportion of Stade toll to freight in British ships from Hull to Hamburg is, at the present time, on a bale of spun silk 115 per cent., on a bale of cotton goods 142 per cent., and on a bale of woollen yarn thirty-six per cent., *Rep. p. iii.*

## G.

*General Steam Navigation Company.* The General Steam Company have six steamers on the London and Hamburg line, two of which carry cargoes only; in 1857 these vessels made 156 voyages, *Pratt 1244-1247*—The vessels take general cargoes; they do not carry coals, *ib. 1248-1251*—The company are, in practice, made the collectors of the Stade tolls, and run all the risk of any errors that may be made in the return or manifest made to the custom-house at Stade, *ib. 1252. 1262. 1487-1489*—The gross amount of the freight for each vessel of the company is, on an average, somewhat under 250 *l.* a voyage, *ib. 1285-1289. 1296.*

The vessels of witness's company still obtain a fair proportion of cargoes, notwithstanding the great competition, *Pratt 1358, 1359*—The passage money by the company's vessels is somewhat less than a third of the freight, *ib. 1376, 1377*—Preference as regards passengers, and also as regards cargoes from Hamburg to London, still given to the General Steam Company's vessels, *ib. 1380. 1421. 1462-1465.*

Examination as to the probable effect of an abolition of the dues upon the freights charged by the General Steam Company; the present extremely low rates would most likely be increased, but the matter must in the main depend upon the competition which might still continue to operate, *Pratt 1320-1409. 1447-1452. 1466-1483. 1544-1547*—The only competition with the General Steam Company is that arising from the vessels of the Hamburg companies, *ib. 1410-1419*—It is not likely that the General Steam Navigation Company would be willing to pay towards redeeming the dues, *ib. 1538, 1539.*

In 1857 the cargoes carried by the company paid 3,231 *l.*, and in 1856, 4,376 *l.*, *Pratt 1542*—Increased trade of the General Steam Company with Hamburg, notwithstanding the operation of the Stade dues, *ib. 1559-1561*—Impracticability of employing the company's steamers now on the Hamburg station in taking cargoes to Hamburg; they are, moreover, too large for the Antwerp or Rotterdam trade, *ib. 1560-1572*—The company insure their own vessels; as regards the cargoes, they are not liable to the sea risk, *ib. 1579-1581.*

*See also Exemptions.*

*Glass.* On glass the tariff charge is 1  $\frac{1}{2}$  *d.* per 100 lbs., *Sir J. E. Tennent 1743.*

*Glover, Richard.* (Analysis of his Evidence.)—Merchant and shipbroker at Hull; has been engaged in the trade with Hamburg for many years, 605-607—Considers that the trade between this country and Hamburg would increase more than it now does if the Stade dues were abolished, 608-754—The dues operate as a differential charge of from one-fourth to two and a half per cent. against British trade, and sometimes more, 609—The detention through the process of paying the tolls is also a source of complaint, 610.

Particulars as to the processes necessary to be complied with in regard to the tolls; that is, more especially, as regards the papers required, 609-626—The detention at Brunshausen costs each vessel about 1 *l.*; 616-621—Way in which the toll is actually collected, 626—Receipt procured at Hamburg, and required to be left at Brunshausen, on the return voyage, 627-631—The entire detention at Brunshausen averages about ten minutes, 632-639—Particulars as to the enforcement of penalties for omissions or irregularities in regard to the necessary forms or documents, 640-643—Reference to several agitations or commercial movements in this country with reference to the tolls, 643-656.

Evidence as to the large per-centage of the tolls in proportion to the freight; in the case of certain exports from Hull, the tolls averaged about 2 *l.* 10 *s.* in proportion to about 4 *l.* 5 *s.* for freight, 657-689. 709-712—There is some slight trouble incurred in the recovery of payments in the event of vessels passing Brunshausen, but being obliged to return on account of ice in the river below Hamburg, 690-697—The reductions through the treaty of 1844, were not considered satisfactory in Hull, where an extinction of the charge was rather looked for, 698-705.

Hanover realises about 30,000 *l.* a year by the dues, 706, 707—Removal since January 1857 of the tolls upon the Weser, which probably enables Bremen more successfully to compete with Hamburg, 707. 713-719. 762—Statement showing in the case of certain articles the per-centage amount of the tolls in proportion to the value of the goods, 0.81.

*Glover, Richard.* (Analysis of his Evidence)—continued.

goods, 708—Reference to the exemption from toll if goods are landed at Harburg, as being contrary to the letter and spirit of the treaty of 1844; 720, 721—The exemption of cargoes landed at Harburg acts as a grievance towards British shipping on account of the low draught of water preventing British ships from going thither, 721-732. 746-761.

Examination to the effect that the exemption of cargoes discharged at Harburg, though a grievance, cannot be considered illegal, 733-747—Instance of some goods having been sent from Hull to Harburg instead of to Hamburg, on account of a saving thereby of about 4 d. on every 100 lbs.; direct loss thereby to the English shipowner, though not to the merchant or manufacturer, 763-774—Reference to a certain statement showing a considerable increase in the British and foreign vessels trading with Harburg, in each year since 1850; 775-780.

Increased competition to which the trade between Hull and Hamburg has been subject since the abolition of the Sound dues, 781-786—Examination upon the question of the Stade dues having the effect of diverting goods from the Hamburg route, and causing them to be discharged at different ports in the Baltic, 787-816—Illustration of the way in which the exemption as regards imports by Hamburg citizens in Hamburg ships injuriously affects British shipping; the result has been to increase the quantity of goods carried under the Hamburg flag, and to decrease the quantity carried under the British flag, 817-837.

The insecurity as regards Hamburg ships does not depend in any way upon the treaty of 1844; 825-827. 837—As regards the Hamburg authorities, a British ship is equally free from tolls as a Hamburg ship, the distinction being made by the Hanoverian Government, 831-836—Statement as to Belgium having been more successful in her treaty with Hanover in 1842, than England was in her treaty of 1844, as regards the relative advantages obtained by each country; authority of Dr. Soetbeer, secretary to the Chamber of Commerce in Hanover, quoted as the ground for this statement, 841-851.

Injurious competition in trade is the principal ground for demanding interference with the Stade tolls, 852—The redemption of the Sound dues is looked upon as a precedent which should be followed in the case of the Stade dues, 853, 854—Hanover does not own both shores of the river, and does nothing towards promoting the navigation, 854—Witness has been deputed to represent the Hull Chamber of Commerce before the Committee, 855-859—Since the abolition of the Sound dues the Stade tolls have been looked upon in Hull as a greater grievance than they were before, 860-864—The Stade dues differ from the Sound dues in being, almost exclusively, a charge upon shipping, but they are also a burden upon manufacturers, 865, 866.

*Great Britain.* English goods pay about 20,000 l. a year in Stade tolls, *Hargreaves* 255-259—Upon every 100 tons the British flag pays on an average 4 l. 2 s. 2 d., *ib.* 260-266—About fifty-five per cent. of the whole dues are paid by England, or rather about fifty per cent., taking both the cargoes and the flags, *ib.* 336. 347—During the five years 1839-43, British cargoes paid 71,000 l.; during the five years 1846-50, 67,600 l., and during the five years 1851-55, 92,000 l., *ib.* 520.

Considerable increase of the British commerce with the Elbe since the treaty of 1844, notwithstanding the onus of the dues; increase also in the proportion paid by her, *Hargreaves* 521-541—Respects in which the toll presses most heavily on English goods, *ib.* 522-527. 535-541—The trade would have increased much more if there had been no tolls, *Hargreaves* 530; *Glover* 608. 754—The whole value of Hamburg imports from England is about 12,000,000 l. a year, whilst the dues paid by England are about 20,000 l., or one-sixth per cent. of this amount, *Hargreaves* 542-556.

In the five years 1839-43, British cargoes paid 45.7 per cent. towards the toll, and in the five years 1851 to 1856, 57.6 per cent., *Sir J. E. Tennent* 1775—Witness has found extreme difficulty in providing any statistical evidence to show the direct effect of the toll upon British trade, *ib.* 1782. 1793.

Resolution of the Committee that the Stade toll is injurious to the trade and shipping of the United Kingdom, *Rep.* p. iii.

See also *Abrogation of Treaty. Commission of 1841. Hamburg. Reductions in 1844. Shipping. Treaty of 1844.*

*Guard-Ship.* Circumstance of the guard-ship mentioned in the treaty of 1844 having been removed from Brunshausen, *Hargreaves* 279-281.

## H.

*Hamburg.* About 2,000 British vessels entered the port of Hamburg in the past year; this large trade is on the increase, *Hargreaves* 131-137—Hamburg pays about nineteen per cent. towards the tolls, *ib.* 336. 343-346—As regards the Hamburg authorities, a British

*Hamburg—continued.*

a British ship is equally free from tolls as a Hamburg ship, the distinction being made by the Hanoverian Government, *Glover* 831-836.

Statement with reference to the increase of Hamburg ships of late years, and the effect of exemption from the tolls in partly causing such increase, *Sanders* 981-989. 1046-1060—Considerable decrease in 1857 in the imports to Hamburg of various British goods and various articles of colonial produce; belief that as regards colonial produce generally, there was a less amount in value imported in British ships in 1857 than 1856, *ib.* 990-1018—Reference to a certain statement, prepared from the Hamburg statistical tables, as showing the importance of the Hamburg trade to England, *ib.* 1019—Calculation, that with the exception of bullion and of the exempted imports from England, the British imports to Hamburg in 1857 were of the value of 10,000,000 *l.*, and that the Stade dues thereon were 25,000 *l.*, or one quarter per cent, *ib.* 1032-1041—Further reference to the decrease in 1857 in the British trade with Hamburg, *ib.* 1088-1090.

The trade between London and Hamburg is chiefly carried on in steamers, *Pratt* 1381—Hamburg is very much interested in the abolition of the tolls, *ib.* 1510-1512. 1534-1537. 1540-1543.

Statement showing a progressive increase notwithstanding the Stade toll, in the value of British and Irish produce exported to the Hanse Towns and to Hanover in each year, since 1841, *Sir J. E. Tennent* 1782, 1783—The decrease in the exports in 1857, as compared with 1856, cannot be traced to the operation of the toll, *ib.* 1782—Statement showing the total value of imports at Hamburg from Great Britain in each year from 1845 to 1856; considerable increase, *ib.* 1784—Total number of vessels entered at Hamburg from the principal ports on the east coast of England, in each of the years 1853-56; the increase has been considerable in almost every case, *ib.*

Further evidence relative to the decrease in the British trade to the Elbe in 1857; inaccuracy of some statements and inferences by Mr. Sanders on this point, *Sir J. E. Tennent* 1736-1792—Increased export to Hamburg, Stettin, and other ports in 1857 simultaneously with the decreased export to Hamburg, *ib.* 1788-1792—Reference to a return of the British tonnage that entered the port of Hamburg in each year from 1846 to 1856, *ib.* 1793.

The present movement against the Stade toll has most probably originated at Hamburg, through the growing rivalry of Harburg, *Sir G. E. Tennent* 1835, 1836—The trade of Hamburg is infinitely more affected than that of Great Britain by the toll, *ib.* 1837—Reference to certain tables which prove that the trade of Hamburg has increased immensely since 1856, notwithstanding the toll, *ib.* 1856-1861.

Table showing the progress of shipping under the Hamburg flag during the period of 1842 to 1857, *App. p.* 150—Table showing the value of the imports from Great Britain and Ireland, and also the value of the total imports by sea to Hamburg, in the years 1856 and 1857, bullion excluded, *ib.* 151.

Statement of amount of Stade tolls paid on cargoes that have arrived exclusively at Hamburg from Great Britain and British possessions during the ten years 1846 to 1855, *App. p.* 160—Statement of amount of Stade toll paid on cargoes that have arrived exclusively at Hamburg (inclusive of Great Britain and British possessions) in vessels under British flag during the ten years 1846 to 1855, *ib.* 161.

Total of British tonnage entered at the port of Hamburg in each year from 1846 to 1856, *App. p.* 164—Total tonnage of Hamburg vessels entered at the port of Hamburg in each year from 1846 to 1856, *ib.*

Statement by the Committee that the increase of British tonnage entering the port of Hamburg has been 102 per cent. since 1849, while the increase on Hamburg tonnage has been 248 per cent. since 1849; and that the foreign tonnage, exclusive of British and Hamburg, entering the port of Hamburg, has, during the same period, increased ninety-nine per cent., *Rep. p.* iii—The general trade to Hamburg, notwithstanding the discouragement occasioned by the tax, has more than doubled within the last ten years, *ib.*

See also *Diversion of Trade. Exemptions. Freights. General Steam Navigation Company. Great Britain. Harbour Dues. Hull. Navigation of the Elbe. Shipping. Stettin.*

*Hanover. See Abrogation of Treaty. Redemption of Tolls. Title or Claim of Hanover. Treaty of 1814. Vienna, Treaty of.*

*Hanoverian Vessels.* Hanoverian vessels pay just the same as others, *Hargreaves* 177, 178. 183.

*Hanse Towns.* Statement showing that the Hanse Towns absorb about twelve per cent., including about ten per cent. absorbed by Hamburg, of the value of the export of British produce, *Sanders* 1022—Total value of the British and Irish produce, and of the foreign and colonial produce exported to the Hanse Towns in 1855, *Sir J. E. Tennent* 1750-1753.

**Harbour Dues.** All vessels are equally liable to the harbour dues at Hamburg, *Hargreaves* 388-390.

**Harburg.** Since 1850 the toll has been levied upon all vessels which do not discharge their goods at Harburg, instead of upon all vessels going to the Elbe; vessels of all nations are alike exempt if they discharge at Harburg, *Hargreaves* 183-194—There is some expense in unloading at Harburg, on account of the river being shallow, which is not necessary at Hamburg, *ib.* 369-373—Particulars as to the goods and vessels which go to Harburg; considerable increase in the trade to that port, *ib.* 515-519. 557-567—Small vessels only can go to Harburg, *ib.* 517. 567, 568.

Legal right of Hanover to exempt from the dues all vessels which discharge at Harburg, *Hargreaves* 569-589—Way in which the tolls act prejudicially to competition on the part of English commerce with Hamburg, notwithstanding the exemption at Harburg, *ib.* 590-598.

Reference to the exemption from toll, if goods are landed at Harburg, as being contrary to the letter and spirit of the treaty of 1844, *Glover* 720, 721—The exemption of cargoes landed at Harburg acts as a grievance towards British shipping, on account of the low draught of water preventing British ships from going thither, *ib.* 721-732. 746-761—The trade with Harburg is now entirely in the hands of Hanover shipowners, who have built special ships for the purpose, *ib.* 722-725. 755-757—Examination to the effect that the exemption of cargoes discharged at Harburg, though a grievance, cannot be considered illegal, *ib.* 733-747.

Instance of some goods having been sent from Hull to Harburg instead of to Hamburg, on account of a saving thereby of about 4d. on every 100 lbs.; direct loss thereby to the English shipowner, though not to the merchant or manufacturer, *Glover* 763-774—Reference to a certain statement showing a considerable increase in the British and foreign vessels trading with Harburg in each year since 1850, *ib.* 775-780.

Sundry disadvantages connected with the port of Harburg which render it unlikely, as compared with Hamburg, to become of any practical value to the British trade, *Sanders* 1023-1027—The trade of Harburg has much increased, *Ward* 1210-1212—The trade of Harburg has increased considerably since exemption from Stade dues in 1850, such trade being an indirect competition with the Hamburg trade, *Pratt* 1513-1535—The water at Harburg is very shallow, and vessels for that port are obliged to unload portions of their cargoes off Altona, *ib.* 1560-1562—There are great facilities at Harburg for sending goods to Central Germany, *ib.* 1563, 1564.

Harburg is the natural channel for much of the trade that formerly went *viâ* Hamburg, *Sir J. E. Tennent* 1793—Advantage rather than disadvantage to this country by the exemption of cargoes discharged at Harburg, *ib.* 1794. 1813—Obstacle to large vessels reaching Harburg; in 1856 however, a good many sailing colliers discharged cargoes there, *ib.* 1795-1798.

Inaccuracy of a certain return which has emanated from the Free Trade Association of Hamburg, in regard to the trade between this country and Harburg, *Sir J. E. Tennent* 1799-1803—Witness delivers in a return showing the number of vessels which arrived at Harburg in each of the years 1845-56, *ib.* 1803—The vessels from Great Britain with cargoes have increased from thirteen vessels in 1845, to 682 in 1856, *ib.*

Sundry circumstances connected with the port, which, independently of its exemption from tolls, are likely to create a diversion thither of a considerable portion of the Hamburg imports, *Sir J. E. Tennent* 1806-1811—Reference to a report made by the British vice-consul at Harburg in 1855, in which he enumerates certain advantages possessed by that place over Hamburg, *ib.* 1806-1811.

Further reference to the increase of trade at Harburg, notwithstanding difficulties in the navigation; the object of Hanover in exempting Harburg is to encourage that port at the expense of Hamburg, although she so far loses Stade tolls, *Sir J. E. Tennent* 2044-2053.

See also *Altona. Diversion of Trade.*

**Hardware.** On hardware the tariff charge is about 1½d. per 100 lbs., *Sir J. E. Tennent* 1740.

**Hargreaves, John.** (Analysis of his Evidence.)—Private Secretary to Colonel Hodges, Her Majesty's Consul general at Hamburg, 130—About 2,000 British vessels entered the port of Hamburg in the past year; this large trade is on the increase, 131-137—The Stade toll was acknowledged for the first time as a river toll in the treaty of 1844; 138-140—It was provided by this treaty that England should pay as regards certain articles only two-thirds of the tolls agreed upon by the convention at Dresden, 140—Previously to 1844 hardly any public tariff was known, 141.

The tolls have always been complained against as being a charge for which no service is rendered by the Hanoverian Government, and as being therefore illegal, 142-145. 150, 151—Complaint also on the ground of detention of vessels, 143—The claim to levy the

*Hargreaves, John.* (Analysis of his Evidence)—*continued*.

the tolls is under the old grant in the year 1038; 146—When the French occupied Hamburg, during the present century, the tolls were not levied, 147, 148—Opinion that the only right to levy is under the treaty between Sweden and Hamburg in 1692; 149.

Nature of the treaty of 1692; tariff attached to it by which the tolls were to be one-sixteenth per cent., 152-161—The tolls, however, were never levied according to the treaty of 1692; 162-166—Hanover, on becoming possessed of the Duchy of Bremen, levied the dues upon some old toll-roll, or according to custom or "observance," 167-170—If the treaty with this country in June 1844 were set aside, Hanover would fall back upon the tariff or convention of Dresden, concluded in April 1844; 171-175.

Statement that British commerce has no advantage, as regards the dues, over the commerce of any of the Elbe-bordering States; nor has it any disadvantages, 176-190. 215-217—Hanoverian vessels pay just the same as others, 177, 178. 183—Since 1850 the toll has been levied upon all vessels which do not discharge their goods at Harburg, instead of upon all vessels going to the Elbe; vessels of all nations are alike exempt if they discharge at Harburg, 183-194—Cargoes belonging to Hamburg citizens are exempt if on board of Hamburg vessels, 195-200.

Arrangement between the Hamburg shipbrokers or consignees and the Hanoverian Government, by which the detention at Brunshausen has of late years been almost obviated, 201-210—The ship's papers are still sent on shore at Brunshausen, and a certificate is required, which occasions some delay and some slight expense, 202-205. 277-282. 285-290—Papers by which the character and amount of the cargo are ascertained by the toll collectors, 210-214—Way in which the abolition of the treaty of 1844 would have the effect of making this country and the river-bordering States equally liable to full dues instead of to the reduced dues, as under the treaty, 218-231. 349-354—Breach of the Dresden Convention of 1844, by the subsequent reduction of the dues in the treaty with England, 229-238.

The duties are charged by weight, except in the case of bullion, which is charged *ad valorem*, 239-241—Papers necessary to be produced in order that British goods imported in British vessels may pay only two-thirds instead of full dues, 242-251—In consequence of the charge being by weight, English goods pay ten per cent. more than French or German goods, 252-254. 269-276—English goods pay about 20,000 *l.* a-year, 255-259—Upon every 100 tons the British flag pays on an average 4 *l.* 2 *s.* 2 *d.*, 260-266.

Particulars in connexion with the toll upon coals; on account of the charge being by weight it amounts to as much as two and a half per cent., 263-268. 283, 284. 293. 323—Circumstance of the guard-ship mentioned in the treaty of 1844 having been removed from Brunshausen, 279-281—Upon the Upper Elbe, above Hamburg, heavy tolls are levied, 288, 289—Effect of the dues to raise prices, and to divert goods from being landed at Hamburg, 323-334. 337, 338—Respect in which the abolition of the dues would be a relief as regards the heavy tolls on the Upper Elbe, 332-334. 338-340.

Willingness of Hanover to give up the toll if purchased, 335—Willingness of Hamburg to pay its share towards liquidating the toll, 336. 348.—About fifty-five per cent. of the whole dues are paid by England, or rather about fifty per cent., taking both the cargoes and the flags, 336, 347—Hamburg pays about nineteen per cent. towards the tolls, 336. 343-346—Proportion in which other countries pay towards the total amount received, 336—The privilege as regards Hamburg citizens amount to about four per cent., 341, 342.

Vessels are allowed to break bulk at Hamburg before the toll is paid, 355-358—Upon returning from Hamburg, vessels obtain a ticket or receipt, which they are obliged to leave at Brunshausen, 359, 360. 374-377—There is no duty on leaving the Elbe, 359. 374, 375. 380, 381—About 36,000 *l.* a year is derived from the tolls on goods landed at Hamburg, 361—If the English Government were to redeem its share of the duties other Governments would feel obliged to do likewise, 362, 363—The Custom-house officers at Hamburg do not cause any undue detention of the vessels, 364-368—There is some expense in unloading at Harburg, on account of the river being shallow, which is not necessary at Hamburg, 369-373.

Further evidence to the effect that Hanover does nothing towards the navigation of the river, and performs no service in return for the toll, 380, 381, 384-387. 391-401—It was by a Government decree that the Elbe-bordering States received the same privileges as were obtained by England under the treaty of 1844; 382, 383—All vessels are equally liable to the harbour dues at Hamburg, 388-390—Further statement that if the treaty of 1844 were abolished, the river-bordering States must still be bound to pay the present full dues, 403-428.

Necessity felt by the Hanoverian Government of treating the toll, in the convention of 1844, as a river toll, 428-431—Impression that if the treaty of 1844 were abrogated, England would not be legally bound by the convention of Dresden, which dealt with the toll

*Hargreaves, John.* (Analysis of his Evidence)—continued.

toll as a river toll, 429-458—Doubt as to England having recognised in the treaty of 1844 that the Stade toll was a river toll, 444. 456-458—The toll is directly at variance with the spirit of the treaty of Vienna, 458-461—If the Stade toll be abolished there would still exist a strong complaint against the heavy dues on the Upper Elbe, 460-462.

[Second Examination.] Witness hands in copies of the decrees by which other vessels were placed on the same footing as English vessels in 1844; 463, 464—If the treaty of 1844 were renounced, goods of Prussian or German origin introduced in Prussian or German vessels would be liable only to two-thirds of the tolls, but such introduction of goods would never arise, 464-474—British goods imported in other vessels would as a matter of course pay full dues if the treaty were renounced, 464-468—Hanover would still have a right to levy the tolls on other States, if England were to redeem its share of the tolls, 475-479—The navigation of the Elbe would be free if England were to redeem the dues, 480.

Belief that the Stade tolls fall upon the producer jointly with the consumer, 481-483. The tolls decidedly increase the price, 484—The tolls injuriously affect English coals, in so far as the German coals come into competition with them, 484-497—If the Stade dues were removed, goods which have diverted by the dues to the Baltic route would again go by the Elbe; circular from some Hamburg merchants adverted to hereon, 498-514—Particulars as to the goods and vessels which go to Harburg; considerable increase in the trade to that port, 515-519. 557-567—Small vessels only can go to Harburg, 517. 567, 568.

Statement of the different proportions of the toll paid by England and other countries during the years 1839-43, 1846-50, and 1851-55; 519-520—Considerable increase of the British commerce with the Elbe since the treaty of 1844, notwithstanding the onus of the dues; increase also in the proportion paid by her, 521-541—Respects in which the toll presses most heavily on English goods, 522-527. 535-541—The whole value of Hamburg imports from England is about 12,000,000 *l.* a year, whilst the dues paid by England are about 20,000 *l.*, or one-sixth per cent. of this amount, 542-556.

Legal right of Hanover to exempt from the dues all vessels which discharge at Harburg, 569-589—Way in which the tolls act prejudicially to competition on the part of English commerce with Hamburg, notwithstanding the exemption at Harburg, 590-598—English goods coming to Hamburg do not come into the Zollverein, but go to the north of Europe, 594-598—Goods landed at Hamburg and passing through the Zollverein would be liable to the transit duty, 600-604.

*Holland.* Holland can escape the tolls by sending her ships to Harburg, *Sir J. E. Tennent* 1769, 1770.

*Hull.* Reference to several agitations or commercial movements at Hull with reference to the tolls, *Glover* 643-656—The reductions through the treaty of 1844 were not considered satisfactory in Hull, where an extinction of the charge was rather looked for, *ib.* 698-705—Witness has been deputed to represent the Hull Chamber of Commerce before the Committee, *ib.* 855-859—Decrease in the trade between Hull and Hamburg in 1857, adverted to as chiefly owing to the abolition of the Sound dues, combined with the operation of the Stade dues, *ib.* 875. 879-885.

Reference to a return showing that the tonnage of vessels from Germany in connexion with the Hull trade has more than doubled since 1830, *Sir J. E. Tennent* 1784, 1785—Total amount of tonnage of British vessels entered at Hull from Germany during each of the years 1830 to 1856, *App. p.* 164.

See also *Elbe-Humber Steam Navigation Company.*      *Freights.*      *Hamburg.*  
*Sound Dues.*

## I.

*Increase of Tolls.* See *Tariff.*

*Iron.* Per-centage of the toll upon raw iron in proportion to the value, *Glover* 708—Amount respectively of the freight and of the Stade tolls, in the case of bar iron from Hull, *Sanders* 892-895—Smaller quantity of bar iron and pig iron exported from England in 1857 than 1856, *ib.* 993—On forged or cast iron the tariff charge is about three-eighths of a penny per 100 lbs., *Sir J. E. Tennent* 1740.

## L.

*Linseed Oil.* In the case of linseed oil the toll is about seventy-five per cent. on the freight from Hull, *Glover* 712.

*Lower Weser.* See *Elstfeth Toll.*



## M.

**Manufactures.** The toll is a charge upon manufacturers as well as upon shipping, *Glover* 866—Statement showing that on British manufacturers the toll is comparatively trifling, *Sir J. E. Tennent* 1740-1743.

## N.

**Navigation of the Elbe.** The tolls have always been complained against as being a charge for which no service is rendered by the Hanoverian Government, and as being therefore illegal, *Hargreaves* 142-145. 150, 151—The expenses connected with the river are defrayed by the Hamburg Government at a yearly cost of about 20,000 *l.*, *ib.* 144—Further evidence to the effect that Hanover does nothing towards the navigation of the river, and performs no service in return for the toll, *ib.* 380, 381. 384-387. 391-401—The navigation of the Elbe would be free if England were to redeem the dues, *ib.* 480.

Hanover does not own both shares of the river, and does nothing towards promoting the navigation, *Glover* 854—Nothing is done by Hanover, but everything by Hamburg, towards the maintenance and improvement of the navigation of the Elbe, *Sanders* 1025-1029—One source of irritation is, that no service is performed in return for the toll, *Sir J. E. Tennent* 1738. 1943, 1944—The fact of no service being rendered for the toll has been used as an argument against its legality, *ib.* 1961-1966.

Resolution of the Committee, That it does not appear that any service whatever is rendered by Hanover in return for the tax levied upon the commerce of Great Britain, *Rep. p. iv.*

**Netherlands.** The Netherlands pay 6 per cent. towards the tolls, *Hargreaves* 336.

## P.

**Papers (Payment of Toll).** Papers by which the character and amount of the cargo are ascertained by the toll collectors, *Hargreaves* 210-214—Papers necessary to be produced in order that British goods imported in British vessels may pay only two-thirds, instead of full dues, *ib.* 242-251.

Particulars as to the processes necessary to be complied with in regard to the tolls, that is, more especially as regards the papers required, *Glover* 609-626; *Pratt* 1253-1257—Necessity of a Custom-house cocket in order to prove the nationality of the goods, *Glover* 610-614. 622—Necessity of bills of lading being left at Brunshausen along with the Custom-house cockets, *ib.* 615, 616.

The cocket, or Custom-house document, now required in reference to the tolls, is wholly unnecessary in addition to the invoice, *Ward* 1134-1137.

Copy of cocket for British goods free of duty shipped at Hull per "Queen of Scotland," in September 1845, *App. p. 145*—Copy of note which is given to the person who delivers the bills of lading and cockets on the vessel passing Stade, and which is required to be delivered up to the Hanoverian Custom-house in Hamburg, *ib.* 148—Copy of certificate granting permission to discharge the cargo, *ib.* 149—Copy of receipts required on getting the papers delivered at Stade by the vessel, and subsequently returned, by which bail is given for the amount of the Stade duty on the cargo, *ib.*—Sketch of the content zettel required to be delivered up to the Hanoverian Custom-house in Hamburg, *ib.*

See also *Penalties*.

**Passengers.** There are no tolls upon passengers to Hamburg, *Pratt* 1378, 1379.

**Passengers' Luggage.** Practice as regards dues upon passengers' luggage, *Pratt* 1378. 1507-1509.

**Payment of Toll.** See *Collection of Toll.* *Detention at Brunshausen.* *Papers (Payment of Toll).*

**Penalties.** Particulars as to the enforcement of penalties for omissions or irregularities in regard to the necessary forms or documents, *Glover* 640-643—Considerable fine incurred if the prescribed regulations are not complied with, *Pratt* 1263—Witness's company have not of late years laid themselves open to any fine, *ib.* 1264-1266.—Further reference to the trouble and risk consequent upon errors or discrepancies in the manifest; necessity of a declaration on oath by the merchant adverted to hereon, *ib.* 1573-1576.

**Periodical Revision.** It was provided in 1844 that there should be a revision of the tolls every twenty-five years, in order to adjust the relative proportions between the weight and the value, *Ward* 1133, 1134.



*Pratt, Martin.* (Analysis of his Evidence.)—Is secretary to the General Steam Navigation Company, 1243—The company have six steamers on the London and Hamburg line, two of which carry cargoes only; in 1857 these vessels made 156 voyages, 1244-1247—The vessels take general cargoes; they do not carry coals, 1248-1251—The company are in practice made the collectors of the Stade tolls, and run all the risk of any errors that may be made in the return or manifest made to the custom-house at Stade, 1252. 1262. 1487-1489.

Process necessary on the arrival of each vessel at Stade in regard to sending certain documents to the Custom-house, 1253-1257—The expense of the detention at Stade is about 14 s. for each voyage, 1258—The stoppage does not average more than five minutes in each case, 1259-1261—Considerable fine incurred if the prescribed regulations are not complied with, 1263—Witness's company have not of late years laid themselves open to any fine, 1264-1266.

There is a delay of about ten days after each vessel has arrived at Hamburg before the accounts from the Stade custom-house are received, which delay creates a corresponding delay and inconvenience in the collection of the freight, 1267-1280. 1490-1506. 1548-1550. 1577, 1578—Inconvenience also to the company on the score of the calculations and system of accounts necessary in the collection of the dues; expense of the process, 1281-1293—The gross amount of the freight for each vessel of the company is, on an average, somewhat under 250 l. a voyage, 1285-1289. 1296—The percentage of the Stade tolls upon the freight is at the present time about 23½ per cent.; witness cannot say what the per-centage is on the value, 1294-1305. 1370.

Freights are now very low, on account of the competition; instances of this, 1295. 1317-1337—Varying amount of the freight and varying per-centage of the tolls upon different articles, 1306-1317—Extremely low freight at the present time for sugar; the dues in this case are more than 50 per cent. upon the freight, 1317, 1318—Particulars as to the nature and extent of the competition experienced by the company from Hamburg vessels carrying goods belonging to Hamburg citizens, such goods being free from tolls; prejudicial and unfair operation of this exemption, which acts as a differential duty in favour of the Hamburg flag, 1318-1337. 1354 *et seq.*

Forms necessary in the case of Hamburg vessels which claim exemption; check upon fraud or evasion of the dues, 1338-1353—The competition since the running of the Hamburg companies vessels has reduced the freight for sugar from about 20 s. to the present rate of 4 s. per ton; this, though injurious to the shipowners, is doubtless an advantage to the merchant, 1355. 1385-1389—The vessels of witness's company still obtain a fair proportion of cargoes, 1358, 1359—In the case of sugar, the Hamburg vessels have now an immense advantage over the vessels of witness's company, 1360-1368.

The passage money by the company's vessels is somewhat less than a third of the freight, 1376, 1377—There are no tolls upon passengers, 1378, 1379—Practice as regards dues upon passengers' luggage, 1378. 1507-1509—Preference as regards passengers, and also as regards cargoes from Hamburg to London, still given to the General Steam Company's vessels, 1380. 1421. 1462-1465—The trade between London and Hamburg is chiefly carried on in steamers, 1381—Coals are not taken from London, 1382-1384.

Examination as to the probable effect of an abolition of the dues upon the freights charged by the General Steam Company; the present extremely low rates would most likely be increased, but the matter must in the main depend upon the competition which might still continue to operate, 1390-1409. 1447-1452. 1466-1483. 1544-1547—Doubt whether the Hamburg vessels could maintain themselves, as at present, on the station if the unfair assistance derived by exemption from the dues were withdrawn, 1392-1400. 1466, 1467—The present low rates may be beneficial to the merchants, but the latter would not object to reasonable rates, 1402-1408.

The only competition with the General Steam Company is that rising from the vessels of the Hamburg companies, 1410-1419—Practice as regards the rates of freight for goods between Hamburg and London, upon which no dues are payable, 1420-1446—Illustration of the unfairness of the competition to which the vessels of witness's company are now subjected, 1453-1461—Origin and extent of the competition on the part of Hamburg companies further adverted to, 1468-1486—Hamburg is very much interested in the abolition of the tolls, 1510-1512. 1534-1537. 1540-1543.

The trade of Harburg has increased considerably since its exemption from Stade dues in 1850, such trade being an indirect competition with the Hamburg trade, 1513-1535—It is not likely that the General Steam Navigation Company would be willing to pay towards redeeming the dues, 1538, 1539—In 1857 the cargoes carried by the company paid 3,231 l., and in 1856, 4,376 l.; 1542—Further comment upon the exemption of Hamburg vessels from the dues; there is no similar instance elsewhere of British shipping being subject to such disadvantageous competition, 1551-1558.

Increased trade of the General Steam Company with Hamburg, notwithstanding the operation of the Stade dues, 1559-1561—Impracticability of employing the steamers  
now

*Pratt, Martin.* (Analysis of his Evidence)—continued.

now on the Hamburg station in taking cargoes to Harburg; they are, moreover, too large for the Antwerp or Rotterdam trade, 1562-1572—The water at Harburg is very shallow, and vessels for that port are obliged to unload portions of their cargoes off Akona, 1560. 1562—There are great facilities at Harburg for sending goods to central Germany, 1563, 1564.

Further reference to the trouble and risk consequent upon errors or discrepancies in the manifest; necessity of a declaration on oath by the merchant adverted to hereon, 1573-1576—Grievance in the system of payment of the dues further adverted to, 1577, 1578—The General Steam Company insure their own vessels; as regards the cargoes, they are not liable to the sea risk, 1579-1581—Witness is not prepared to submit any plan for getting rid of the dues, 1582.

*Pressure of the Tolls.* Belief that the Stade tolls fall upon the producer jointly with the consumer, *Hargreaves* 481-483—Abolition of the tolls would partly benefit the local importers and consumers, and partly the British producers, *Ward* 1213-1217—The effect of the Stade toll on British commerce is more indirect than direct, *Sir J. E. Tennent* 1738—It seems to be undeniable that the tax must be a great discouragement to competition, and must also tend to discourage consumption, *ib.* 1782.

<i>See also Amount of the Tolls.</i>	<i>Coals.</i>	<i>Diversion of Trade.</i>	<i>Exemptions.</i>
<i>Freights.</i>	<i>Great Britain.</i>	<i>Hamburg.</i>	<i>Harburg.</i>
		<i>Tariff.</i>	<i>Weight.</i>

*Prices.* Effect of the dues to raise prices and to divert goods from being landed at Hamburg, *Hargreaves* 323-334. 337, 338. 484.

*Protests.* There have been some protests by this country in regard to the rate of charge previously to 1844, *Ward* 1164, 1165. 1168, 1169.

R.

*Recovery of Payment.* There is some slight trouble incurred in the recovery of payments in the event of vessels passing Brunshausen, but being obliged to return on account of ice in the river below Hamburg, *Glover* 690-697.

*Redemption of Toll.* Willingness of Hanover to give up the toll if purchased, *Hargreaves* 335—Willingness of Hamburg to pay its share towards liquidating the toll, *ib.* 336. 348—Proportion in which the several countries pay towards the total amount received, *ib.* 336—If the English Government were to redeem its share of the duties, other Governments would feel obliged to do likewise, *ib.* 362, 363—Hanover would still have a right to levy the tolls on other States if England were to redeem its share of the tolls, *ib.* 475-479.

A redemption of the tolls would be a most desirable thing for the British trade, *Ward* 1185—Impression that Hanover would not be indisposed to a capitulation upon fair terms, *ib.* 1203—Reference to a calculation by the Governor of Hamburg, made upon the principle adopted in the case of the Sound Dues, that the total sum required to capitalise the Stade Tolls is 447,593 £, and that Great Britain's share of this amount is 227,451, *ib.* 1204-1209—Further statement as to the expediency of redeeming the tolls; nature of the negotiation desirable for the purpose, *ib.* 1233-1242—Belief that most of the States interested would be willing to contribute, *ib.* 1234.

Hamburg and the surrounding German States are more directly interested than this country in the abolition of the toll, and their interposition may in time effect such abolition, *Sir J. E. Tennent*, 1909-1919—Grounds for concluding that in the event of compensation being granted, Great Britain should not pay a sum precisely in proportion to the actual amount paid by her in dues, *ib.* 1991, 1992—If compensation be given, Great Britain has no right to pay upon a higher basis than one-sixteenth per cent., *ib.* 2021-2023—Interest of Hanover in postponing any arrangement about the toll, *ib.* 2035.

<i>See also Abrogation of Treaty.</i>	<i>Sound Dues.</i>	<i>Title or Claim of Hanover.</i>
<i>Vienna, Treaty of.</i>		

*Reductions in 1844.* Nature of the reductions and concessions made by Hanover in 1844, as regards English ships and cargoes, *Wurm* 119. 125.—Impression as to other nations being favoured by treaty in the same way as England was in 1844, *ib.* 126-128—Belief as to Hanover being entitled to charge lower rates in the case of some nations, whilst as regards other nations a higher rate may be demanded, *ib.* 129.

It was provided by the treaty of 1844 that England should pay, as regards certain articles only two-thirds of the tolls agreed upon by the Convention at Dresden, *Hargreaves* 140—Breach of the Dresden Convention of 1844 by the subsequent reduction of the dues in the treaty with England, *ib.* 229-238—Witness hands in copies of the decrees by which

*Reductions in 1844—continued.*

which other vessels were placed on the same footing as English vessels in 1844, *Hargreaves* 463, 464, and *App. p.* 145, 146.

On the privileged articles in 1855 to which the reduction of one-third applies, the tolls were at the rate of 2 s. per 100 lbs., *Sir J. E. Tennent* 1752—About 2,666 l. a year is gained by the reductions in 1844, *ib.* 2037—Copies of decrees by the present King of Hanover relative to Stade dues, and the granting of certain privileges or reductions in connexion therewith, *App. p.* 145, 146.

See also *Abrogation of Treaty. Elbe-bordering States.*

*Return Cargoes.* Practice as regards the rates of freight for goods between Hamburg and London upon which no dues payable, *Pratt*, 1420-1446—Drawback upon Harburg in the fact of its not affording return freights, *Sir J. E. Tennent* 1811-1813.

*Return Voyage.* Upon returning from Hamburg vessels obtain a ticket or receipt, which they are obliged to leave at Brunshausen, *Hargreaves* 359, 360. 374-377; *Glover* 627-631—There is no duty on leaving the Elbe, *Hargreaves*, 359. 374, 375. 380, 381—Copy of the Stade pass which must be delivered at Stade on repassing, *App. p.* 150.

*Revision.* See *Abrogation of Treaty. Commission of 1841. Elbe-bordering States. Periodical Revision. Reductions in 1844. Riverain Commission. Tariff. Treaty of 1844.*

*River Toll.* The Stade Toll was acknowledged for the first time as a river toll in the Treaty of 1844, *Hargreaves* 138-140—Necessity felt by the Hanoverian Government of treating the toll in the Convention of 1844 as a river toll, *ib.* 428-431—Doubt as to England having recognised in the Treaty of 1844 that the Stade toll was a river toll, *ib.* 444, 456-458.

*Riverain Commission.* Revision of the tolls by the Riverain Commission at Dresden in April 1844, one-fourth per cent. being taken as the basis, *Ward* 1117-1122—Belief as to the legality of the Acts of the Riverain Commission in 1844 in fixing upon a basis of one-fourth; authority under the Treaty of Vienna for the acts of the Commission, *ib.* 1155-1169, 1181-1183—There have been one or two meetings of the Riverain Commission since 1844, but there has been no alteration in the tariff, *ib.* 1170-1174.

The toll is now regulated by the Riverain Commission, which sat in 1844, *Sir J. E. Tennent* 1979, 1980—The Riverain Commission would have been justified in admitting the toll only so far as adequate services were rendered for it, *ib.* 1981-1986—Circumstance of Denmark and Hanover having protested against the decision of the Riverain conference in 1844; *ib.* 1987.

Duty not only of the Riverain Commission (which is now assembled, or about to assemble) to reconsider the question of the toll, but also of the States, who were parties to the Treaty of Vienna, to see that it is so reconsidered, *Sir J. E. Tennent* 1988-1990. 1995, 1996—Impression that the Riverain Commission has already assembled, their duty being to revise the toll upon the Elbe; Hanover is one of the Commission, *ib.* 2027, 2028. 2033, 2034

See also *Vienna, Treaty of.*

## S.

*Salt.* Per-centage of the toll upon salt in proportion to the value, *Glover* 708.

*Sanders, August.* (Analysis of his Evidence.)—Is engaged as a merchant and shipowner in the Hamburg trade, 867—Is also chairman of the Board of Directors of the Elbe-Humber Steam Navigation Company, plying with four vessels between Hull and Hamburg since 1846; 867-874—Some of the shareholders in the company not living within the walls of Hamburg, the cargoes are held to be liable to the Stade dues, though sailing under the Hamburg flag, 868-871.

Reference to a statement showing that the Elbe-Humber Company paid 4,032 l. in Stade dues in 1856, and 3,329 l. in 1857; 875-878—Decrease in the trade between Hull and Hamburg in 1857, adverted to as chiefly owing to the abolition of the Sound dues, combined with the operation of the Stade dues, 875. 879-885—Statement that the dues paid by witness's company in 1856 and 1857 amounted to about 25 per cent. on the freight; varying proportion respectively of the freight and dues upon different articles adverted to hereon, 886-920.

Illustrations of the injurious operation of the tolls as regards British shipping by reason of the exemption accorded to goods imported in Hamburg ships by Hamburg citizens, 921-930. 956—The Elbe-Humber Company are about selling their ships to Hamburg citizens, on account of the exemption thereby to be obtained, 922—Way in which the question of a ship being the property of Hamburg citizens is settled by Hanover, 931-938.

Details

*Sanders, August.* (Analysis of his Evidence)—continued.

Details as to the severe pressure of the tolls in the case of coals imported from England; instances where the per-centage of the tolls upon the value has been considerable, 939-967—German coals are increasing in competition with English coals, but not for actual consumption at Hamburg, 948. 969-973. 1062-1067. 1073-1078. 1097, 1098—The Stade tolls tend to prevent the expansion of the British coal trade and the employment of British colliers; there was in fact a small reduction in 1857 in the quantity exported to Hamburg, whereas but for these tolls there most probably would have been a considerable increase, 949. 955, 956. 968-980. 1061 *et seq.*

Decrease in the last two years in the British shipping employed in the Hamburg trade, whilst there has been an increase in the foreign shipping, such increase being owing, as witness believes, to the extended employment of Hamburg ships on account of their exemption from the tolls, 981-989—Considerable decrease in 1857 in the imports to Hamburg of various British goods, and various articles of colonial produce; belief that as regards colonial produce generally, there was a less amount in value imported in British ships in 1857 than 1856; 990-1018.

Reference to a certain statement, prepared from the Hamburg Statistical Tables, as showing the importance of the Hamburg trade to England, 1019—The abolition of the Sound dues began to operate in the middle of last year, 1020, 1021—Statement showing that the Hanse Towns absorb about 12 per cent., including about 10 per cent. absorbed by Hamburg, of the whole value of the export of British produce, 1022—Sundry disadvantages connected with the port of Harburg which render it unlikely, as compared with Hamburg, to become of any practical value to the British trade, 1023-1027.

Nothing is done by Hanover, but everything by Hamburg, towards the maintenance and improvement of the navigation of the Elbe, 1025-1029—Hamburg does not levy any transit duty on goods transported through Germany, 1030, 1031—Calculation that, with the exception of bullion, and of the exempted imports from England, the imports from England to Hamburg in 1857 were of the value of 10,000,000 £, and that the Stade dues thereon were 25,000 £, or one-quarter per cent., 1032-1041.

According to the quantity or weight of the British coals imported, the tolls amount to about 5,500 £ a year, 1042-1044. 1091, 1092—Way in which the trans-Atlantic and foreign shipping of Great Britain suffers through the tolls, 1045—The tolls operate as a differential duty in favour of the Hamburg ship, and against the British ship, 1045. 1099-1102—Further statement with reference to the increase of Hamburg ships of late years, and the effect of exemption from the tolls in partly causing such increase, 1046-1060.

Doubt whether the trade between England and Bremen has increased of late; belief that on this score Bremen is not a dangerous competition to Hamburg, 1079-1087—Further reference to the decrease in 1857 in the British trade with Hamburg, 1088-1090—The per-centage of the tolls in the case of coals is very far beyond the per-centage on the average of goods, 1093-1095. 1103-1105—The duty on coals falls on the producer as well as on the consumer, 1096, 1097—On the average of other articles exported from England exclusive of coals, the per-centage of the tolls is about two ninths per cent., 1103-1105.

*Sea Toll.* Statement by Hanover on some occasions that the toll was a maritime toll, and on other occasions that it was a river toll, *Wurm* 99-109—Protest made in 1821 and 1824 against the dues being levied as a maritime toll, *ib.* 109—Untenableness of the arguments held for a long time by Hanover, that the Stade toll was a sea toll; particulars as to her ultimate cession of this point, *Sir J. E. Tennent* 1971-1978.

*Shipping.* The Stade dues differ from the Sound dues in being almost exclusively a charge upon shipping, *Glover* 865, 866—Decrease in the last two years in the British shipping employed in the Hamburg trade, whilst there has been an increase in the foreign shipping, such increase being owing, as witness believes, to the extended employment of Hamburg ships, on account of their exemption from the tolls, *ib.* 981-989. 1046-1060—Way in which the transatlantic and foreign shipping of Great Britain suffers through the tolls, *ib.* 1045.

Freights between this country and Hamburg are now very low, owing to the competition of rival routes since the abolition of the Sound dues, *Pratt* 1295. 1317-1337; *Sir J. E. Tennent* 1754—Origin and extent of the competition on the part of the Hamburg companies vessels, in regard to their carrying cargoes which are exempt from tolls, *Pratt* 1295. 1317-1337. 1392-1400. 1410-1419. 1420-1446. 1468-1486—Illustration of the unfairness of the competition to which the vessels of the witness's company are now subjected, *ib.* 1453-1461—Further comment upon the exemption of Hamburg vessels from the dues; there is no similar instance elsewhere of British shipping being subject to such disadvantageous competition, *ib.* 1551-1558.

English shipping has for the last year or two been in a very distressed state, *Wood* 1720-1723—Statement as to the quantity of British shipping, of Hamburg shipping, and of other shipping employed on the Elbe in each year from 1846 to 1856; explanation  
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*Shipping*—continued.

hereon as to the especially large increase of Hamburg shipping, *Sir J. E. Tennent* 1791-1973.

See also *Exemptions. Freights. General Steam Navigation Company. Great Britain. Hamburg.*

*Sound Dues.* Increased competition to which the trade between Hull and Hamburg has been subject since the abolition of the Sound dues, *Glover* 781-786—The redemption of the Sound dues is looked upon as a precedent which should be followed in the case of the Stade dues, *ib.* 853, 854—Since the abolition of the Sound dues the Stade tolls have been looked upon in Hull as a greater grievance than they were before, *ib.* 860-864—The abolition of the Sound dues began to operate in the middle of last year, *Sanders* 1020, 1021.

Grounds for the conclusion that the purchase of the Sound dues does not afford a precedent for the purchase of the Stade toll, *Sir J. E. Tennent* 1935-1969—Expenses incurred by Denmark in connexion with the navigation; for a large portion of the Sound dues there were, however, no services rendered, *ib.* 1945, 1965-1969.

Letter from sundry persons at Hamburg, dated 16 April 1857, with reference to the competition likely to arise, and to be very injurious, to the trade between Hull and Hamburg, that is, by the diversion of trade *viâ* Stettin since the Sound dues have been abolished, *App. p.* 146-148.

Resolutions of the Committee that the Stade toll differs from the Sound dues, inasmuch as the Sound dues were a tax charged not only upon articles of export, but also on articles of general use imported into the United Kingdom; but the Stade toll is levied on exports from and not on imports into the United Kingdom, *Rep. p.* iii.

*Stettin.* Freights are considerably higher from England to Stettin than to Hamburg, &c., Stettin, however, being nearer than Hamburg to Berlin, *Wood* 1659-1662, 1667.

The diversion of a portion of the Hamburg trade to Stettin is a diversion to its natural channel, now that the Sound dues have been abolished, *Sir J. E. Tennent* 1793—Increasing imports to Stettin previously to the abolition of the Sound dues, *ib.* 1823-1826—Belief that the removal of the Stade toll would not cause a return of the trade from Stettin to Hamburg, *ib.* 1827—Less cost in sending goods *viâ* Stettin than *viâ* Hamburg to Berlin, even if the Stade toll were abolished, *ib.* 1827-1830.

Further statement with reference to the relative cost of carriage from Stettin to Berlin and from Hamburg to Berlin; the freight from London is about the same to Stettin and Hamburg, *Sir J. E. Tennent* 1897-1906.

See also *Diversion of Trade.*

*Sugar.* Extremely low freight at the present time for sugar; the dues in this case are more than 60 per cent. upon the freight, *Pratt* 1317, 1318—The competition since the running of the Hamburg companies vessels has reduced the freight for sugar from about 20s. to the present rate of 4s. per ton; this, though injurious to the shipowners, is doubtless an advantage to the merchant, *ib.* 1355, 1385-1389—In the case of sugar the Hamburg vessels have now an immense advantage over the vessels of witness's company, *ib.* 1360-1368.

*Sweden.* See *Tariff. Title or Claim of Hanover.*

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*Tariff.* Reference to a document of the year 1613, as containing a tariff of the tolls as levied at that period, and which tariff was to be returned to under the cession of Bremen, to Sweden in 1648, *Wurm* 12-26—The King of Sweden, however, obtained or assumed a power to levy the increased dues, which had been in force, under the thirty years' war, subsequently to 1613, *ib.* 12—There have been from the first protests against any innovations in regard to the toll as originally granted, *ib.* 28.

Hanover, on becoming possessed of the dues, declared that she should strictly adhere to the legal rate as settled under the King of Sweden in 1692, but she acted in a very different manner, *Wurm* 60 *et seq.*—Reference to certain documents as showing the progressive manner in which Hanover dealt with the dues, as compared with her claims under the tariff of 1692, *ib.* 67-79—According to the treaty of 1692 the basis of the toll was an *ad-valorem* duty, equivalent to about one-sixteenth per cent., but Hanover has since entirely revised this tariff, and largely increased the charge in several instances, *ib.* 85-95.

Previously to 1844 hardly any public tariff was known, *Hargreaves* 141—Nature of the treaty of 1692; tariff attached to it by which the tolls were to be one-sixteenth per cent.,

*Tariff*—continued.

cent., *Hargreaves* 152-161—The tolls, however, were never levied according to the treaty of 1692, *ib.* 162-166—The tolls cannot be increased beyond the tariff of 1844, *ib.* 228.

The tariff in 1841 comprised no less than 6,688 items of charge, *Ward* 1110—The tariff consented to by the treaty of 1844 is an improvement upon the old tariff, though not altogether satisfactory, *ib.* 1123-1127. 1134 *et seq.*

The basis of the tariff is a quarter per cent. value, calculated per 100 lbs. weight, the freight and charges being comprised in the value, *Sir J. E. Tennent* 1738, 1739. 1742—The tariff charge is on some articles more and on some articles less than a quarter per cent., and on the aggregate is less than a quarter per cent.; instances in illustration of this variation, 1738-1744. 1752.

Statement by Professor Wurm, dated 18 June 1858, with reference more especially to the validity of the tariff of 1692, and arguing that the basis of one-sixteenth per cent. is the only legitimate basis of the tolls, *App. p.* 141, 142—Paper put in by Professor Wurm, being an extract from an analysis of different tariffs of the Stade toll, compared with the original Elbe toll-tax, adopted by mutual agreement in 1692, as an immutable form, showing the gradual increase of the duties arbitrarily raised by Hanover, *ib.* 143, 144.

Copy of the tariff, *App. p.* 152-158.

See also *Abrogation of Treaty.*      *Commission of 1841.*      *Reductions in 1844.*  
*Riverain Commission.*      *Title or Claim of Hanover.*      *Weight.*

*Tennent, Sir J. Emerson.* (Analysis of his Evidence.)—Secretary to the Board of Trade, 1737—The effect of the Stade toll on British commerce is more indirect than direct, 1738—The inconveniences of the toll have been considerably diminished since 1844, *ib.*—One source of irritation is, that no service is performed in return for the toll, *ib.*—The basis of the tariff is a quarter per cent. value, calculated per 100 lbs. weight, the freight and charges being comprised in the value, 1738, 1739. 1742—The tariff charge is on some articles more and on some articles less than a quarter per cent., and on the aggregate is less than a quarter per cent.; instances in illustration of this variation, 1738-1744. 1752.

Explanation as to the amount of the toll, in proportion to the value, upon coal of different qualities; it is sufficiently high to operate as a considerable discouragement to exports from this country, 1745—The case of coal is specially provided for by the Dresden Commission, and is one of great peculiarity and great hardship; England in fact has not the power to remonstrate against the charge, 1746-1749.

Total value of the British and Irish produce, and of the foreign and colonial produce, exported to the Hanse Towns in 1855; 1750-1753—The tolls in 1855 came to about 3s. 4d. per 100 lbs. weight, 1752—On the privileged articles in 1855, to which the reduction of one-third applies, the tolls were at the rate of 2s. per 100 lbs., 1752.

Statement showing that the tolls vary very considerably in proportion to the freights, 1754, 1755—The proportion of the toll to the freight is not so high as that of 2l. 10s. to 4l. 5s.; 1754—On coals the freight is about 7s. 6d. a ton, and the toll 3d.; 1755—Excepting certain articles, where the toll is very high in proportion to the freight, and excepting also coals, where the toll in proportion to the freight is very low, the toll averages about 22d. per ton, or 10s. per cwt. on the freight in the case of the great mass of exports from this country, *ib.*

Information as to the amount of the toll upon each cargo, and upon each 100 tons; reference to certain returns hereon, distinguishing between cargoes under the British flag and cargoes generally, 1756-1760—Increased export from England since 1851 of articles which pay the higher rate in proportion to the weight, 1760—Much higher average of the tolls for each 100 tons previously to 1844 than since that year, *ib.*

Way in which the exemption from toll in the case of cargoes belonging to Hamburg citizens and in Hamburg ships acts prejudicially to British trade, more especially to the Transatlantic trade, 1761-1765—Opportunities of France for sending her produce into Germany, &c. by railway, thereby avoiding the Stade tolls, 1766-1768. 1776. 1779. 1781—Holland can escape the tolls by sending her ships to Harburg, 1769, 1770.

Reference to a statement, prepared from a Hanoverian source, showing the total receipts from the Stade tolls, the expenses, and the net receipts in each of the years 1834-54; 1771—In 1834 the net receipts were 22,992 l., and in 1854, 31,029 l.; *ib.*—Statement showing the proportion in which cargoes from various countries contributed to the toll in the five years respectively from 1839 to 1843, from 1846 to 1850, and from 1851 to 1856; 1772-1775—Similar statement in regard to the proportion paid respectively by British and foreign flags, 1772-1775.

Causes of the decrease from year to year in the proportion paid by foreign countries, and of the increase in the proportion paid by Great Britain; the extension of railways on the Continent is the main cause, 1775-1781—Witness has found extreme difficulty in producing any statistical evidence to show the direct effect of the toll upon British  
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*Tennent, Sir J. Emerson.* (Analysis of his Evidence)—continued.

trade, 1782. 1793—It seems to be undeniable that the tax must be a great discouragement to competition, and must also tend to discourage consumption, 1782.

Statement showing a progressive increase, notwithstanding the Stade toll, in the value of British and Irish produce exported to the Hanse Towns, and to Hanover, in each year since 1841; 1782, 1783—The decrease in the exports in 1857 as compared with 1856 cannot be traced to the operation of the toll, 1782—Statement showing the total value of imports at Hamburg from Great Britain in each year from 1845 to 1856; considerable increase, 1784.

Total number of vessels entered at Hamburg from the principal ports on the east coast of England in each of the years 1853-56; the increase has been considerable in almost every case, 1784—Reference to a return showing that the tonnage in connexion with the Hull and Hamburg trade has more than doubled since 1830; 1784, 1785—Further evidence relative to the decrease in the British trade to the Elbe in 1857; inaccuracy of some statements and inferences by Mr. Sanders on this point, 1786-1792—Increased export to Hamburg, Stettin, and other ports in 1857 simultaneously with the decreased export to Hamburg, 1788-1792.

Belief that the diversion of trade from Hamburg to Stettin and Harburg is attributable to other causes than the operation of the Stade toll, 1790. 1793—Statement as to the quantity of British shipping, of Hamburg shipping, and of other shipping employed on the Elbe in each year from 1846 to 1856; explanation hereon as to the especially large increase of Hamburg shipping, 1791-1793—Reference to a return of the British tonnage that entered the port of Hamburg in each year from 1846 to 1856; 1793.

In considering the effect of the Stade toll upon British commerce, the tolls on the Upper Elbe must be included in the consideration, 1793—The transit dues by the German railways must also be considered in calculating the effect of the Stade toll, *ib.*—The diversion of a portion of the Hamburg trade to Stettin is a diversion to its natural channel, now that the Sound dues have been abolished, *ib.*—Harburg also is the natural channel for much of the trade that formerly went *viâ* Hamburg, *ib.*

Advantage rather than disadvantage to this country by the exemption of cargoes discharged at Harburg, 1794-1813—Obstacle to large vessels reaching Harburg; in 1856, however, a good many sailing colliers discharged cargoes there, 1795-1798—Inaccuracy of a certain return which has emanated from the Free Trade Association of Hamburg in regard to the trade between this country and Harburg, 1799-1803—Witness delivers in a return showing the number of vessels which arrived at Harburg in each of the years 1845-56; the vessels from Great Britain with cargoes have increased from thirteen vessels in 1845 to 682 in 1856; 1803.

Sundry circumstances connected with the port of Harburg which, independently of its exemption from the Stade dues, are likely to create a diversion thither of a considerable portion of the Hamburg imports, 1806-1811—Reference to a report made by the British vice-consul at Harburg in 1855, in which he enumerates certain advantages possessed by that place over Hamburg, *ib.*—Drawback upon Harburg in the fact of its not affording return freights, 1811-1813—The exemption as regards Hamburg citizens presents a most unfavourable contrast, with respect to British trade, as compared with the general exemption in the case of Harburg, 1813.

(Second Examination).—Statement showing that there was an increase in 1856 and 1857 in the quantity of coal exported from this country to Hamburg, as well as to the Hanse Towns generally, and to Harburg, 1814—The trade of Bremen has increased considerably of late years; causes of such increase, 1815, 1816—The Elsfleth toll, on the Lower Weser, was analogous in almost every particular to the Stade toll, 1816, 1817—A territorial compensation was given by the German States to the Duke of Oldenburg for the abolition of the Lower Weser toll, 1818-1822.

Increasing imports to Stettin previously to the abolition of the Sound dues, 1823-1826—Belief that the removal of the Stade toll would not cause a return of the trade from Stettin to Hamburg, 1827—Less cost in sending goods *viâ* Stettin than *viâ* Hamburg to Berlin even if the Stade toll were abolished, 1827-1830—Impression that the tolls upon the Upper Elbe amount to cent. per cent. upon the freights; their effect is infinitely greater than that of the Stade tolls, 1831—Further statement that railways have had considerable influence in diverting portions of the trade from the Hamburg route, 1832-1834.

The present movement against the Stade tolls has most probably originated at Hamburg through the growing rivalry of Harburg, 1835, 1836—The trade of Hamburg is infinitely more affected than that of Great Britain by the toll, 1837—The disquieting of the trade by the inequalities and exemptions connected with the toll is the main cause of the complaint in this country, 1838—Explanation that the disadvantageous competition with Hamburg vessels refers only to that portion of their cargoes which is the

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*Tennent, Sir J. Emerson. (Analysis of his Evidence)—continued.*

*bonâ fide* property of Hamburg citizens, and which is consigned direct to them, 1839-1856.

Evidence to the effect that goods in transit through Hamburg, when imported by Hamburg citizens, are not exempt from the toll, and that the main proportion of imports by citizens are intended for transit, and pay the toll, 1842-1856. 1860 *et seq.*—Reference to certain tables which prove that the trade of Hamburg has increased immensely since 1846, notwithstanding the toll, 1857-1861—Means of calculating, by references to the increase of imports and the increase of toll, that there has been no material increase, if any, of exempted goods, 1860, 1861. 1880-1887. 1889-1896.

Witness delivers in a table showing the tonnage of British vessels entered and cleared at the port of Bremen in each of the years 1851-56; 1888—Also a table showing the total tonnage, under all flags, entered and cleared at Bremen from and to Great Britain in each of the years 1851-56; *ib.*—Also a table showing the value of imports and exports into the port of Bremen from and to Great Britain in each of the years 1851-56; *ib.*

Further statement with reference to the relative cost of carriage from Stettin to Berlin, and from Hamburg to Berlin; the freight from London is about the same to Stettin and Hamburg, 1897-1906.

Witness is extremely doubtful whether Hanover is entitled to any compensation for the abolition of the Stade toll, 1907 *et seq.*—Hamburg and the surrounding German States are more directly interested than this country in the abolition of the toll, and their interposition may in time effect such abolition, 1909-1919—Further evidence relative to the Elsfleth toll on the Lower Weser, and the mode of its redemption; circumstance of Great Britain not having been called upon to join in the compensation, 1910—Grounds for concluding that the Dukes of Oldenburg had a better title to the Elsfleth toll than Hanover has to the Stade toll, 1910. 1920-1934.

The tolls upon the Upper Elbe amount to about 120,000 *l.* a year, 1911—Hamburg, in its endeavour to effect a reduction or abolition of the Upper Elbe tolls, does not contemplate any contribution from foreign States, *ib.*—Recent relinquishment voluntarily of the tolls on the Upper Weser, 1912-1915—Probability of the Upper Elbe tolls being extinguished by the same means as the Upper Weser tolls, 1916, 1917.

Grounds for the conclusion that the purchase of the Sound dues does not afford a precedent for the purchase of the Stade toll, 1935-1969—Further statement that Hanover performs no services in return for the toll, 1943, 1944—Expenses incurred by Denmark in connexion with the navigation; for a large portion of the Sound dues there were, however, no services rendered, 1945. 1965-1969—Practical means of Hanover for preventing the passage of vessels unless they pay the toll; she has a battery which commands the navigable channel of the river, 1946. 2036, 2037.

Belief that until this country created a temporary title for Hanover by the treaty of 1844, no right existed upon her part which could now be enforced against us, 1947-1952—If the treaty were abolished, we should return precisely to the *status quo*, and be in a position to raise the question of the title of Hanover, 1949-1960—In any new negotiation we should suffer by the moral effect of having entered into the treaty, 1950. 1952. 1997-1999—The fact of no service being rendered for the toll has been used as an argument against its legality, 1961-1966.

Opinion that by the operation of the treaty of Vienna, the toll should have been abolished by the first Riverain Commission, which was subsequently assembled to regulate the navigation of the Elbe, 1970 *et seq.*—Untenableness of the argument held for a long time by Hanover that the Stade toll was a sea toll; particulars as to her ultimate cession of this point, 1971-1978—The toll is now regulated by the Riverain Commission, which sat in 1844; 1979, 1980—The Riverain Commission would have been justified in admitting the toll only so far as adequate services were returned for it, 1981-1986.

Circumstance of Denmark and Hanover having protested against the decision of the Riverain Conference in 1844; 1987—Duty not only of the Riverain Commission (which is now assembled, or about to assemble) to reconsider the question of the toll, but also of the States, who were parties to the Treaty of Vienna, to see that it is so reconsidered, 1988-1990. 1995, 1996—Grounds for concluding that in the event of compensation being granted, Great Britain should not pay a sum precisely in proportion to the actual amount paid by her in dues, 1991, 1992—Belief that on the sitting of the Riverain Commission, Great Britain might claim absolute exemption, 1993-1996.

The first step on the part of this country must be to get rid of the treaty of 1844, as an indispensable preliminary to raising the question as to the title of Hanover to the toll, 1998 *et seq.*—The treaty does not by any means establish the title of Hanover, 2000—It is quite open to Great Britain to determine the treaty of 1844, and to demand the full performance of the engagements sanctioned by the Treaty of Vienna, such engagement not having been fulfilled by the Riverain Commission, 2000-2020—If compensation be given,  
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Great Britain has no right to pay upon a larger basis than one-sixteenth per cent., 2021-2023.

Belief that no loss would accrue to this country if notice were given to terminate in twelve months the treaty of 1844; grounds for this conclusion, 2024-2026. 2037-2043—If it be decided to determine the treaty, notice should immediately be given, 2027-2035—Impression that the Riverain Commission has already assembled, their duty being to revise the tolls upon the Elbe; Hanover is one of the commission, 2027, 2028. 2033, 2034—Interest of Hanover in postponing any arrangement about the toll, 2035.

Under any circumstances the most we could lose by abrogating the treaty, would be the reduction of one-third on certain articles, or about 2,666 £ a-year, 2037—An abrogation of the treaty is necessary in order to obtain relief in the case of coals, 2038, 2039—Further reference to the increase of trade at Harburg, notwithstanding difficulties in the navigation; the object of Hanover in exempting Harburg is to encourage that port at the expense of Hamburg, although she so far loses Stade tolls, 2044-2053—Lord Aberdeen was Foreign Minister at the time of the treaty of 1844; 2054.

*Title or Claim of Hanover.* Witness considers that there is no legal or constitutional right to levy the dues as they are at present; quotes sundry authorities in support of this conclusion, *Wurm* 4. 8. 11—Explains the particulars of the original grant of the dues as made in the year 1038 by the Emperor Conrad the Second to the then Archbishop of Bremen, *ib.* 5-8. 27, 28—Since the original grant to the Archbishop of Bremen, the dues have changed owners several times, and have not for centuries been appropriated to any purpose analogous to that of the original founder, *ib.* 8.

Explanation of the circumstances and terms under which at the Peace of Westphalia, in 1648, the King of Sweden became possessed of the dues, *Wurm* 10-38—Proceedings with reference to the dues during the interval between their possession by Sweden and the conquering by Denmark of the Duchies of Bremen and Verden, *ib.* 39-44—Details of the transactions, more especially between Denmark and England, anterior to the cession of Sweden in 1719 of the Duchies of Bremen and Verden to the King of Great Britain, as Elector of Hanover, *ib.* 45-59. 80-84—Explanation as to a certain declaration relative to the claims of Hanover, as put forward by the Hanoverian Ambassadors at the River Elbe Navigation Committee, at the Congress of Vienna, in 1815, *ib.* 100-109.

The claim to levy the tolls is under the old grant in the year 1038, *Hargreaves* 146—When the French occupied Hamburg during the present century, the tolls were not levied, *ib.* 147, 148—Opinion that the only right to levy is under the treaty between Sweden and Hamburg in 1692, *ib.* 149—Hanover, on becoming possessed of the Duchy of Bremen, levied the dues upon some old toll, as according to custom or "observance," *ib.* 167-170.

It was admitted at the commission of 1841, that Hanover had a right to levy some tolls at Stade, *Ward* 1114-1116.

Witness is extremely doubtful whether Hanover is entitled to any compensation for the abolition of the Stade toll, *Sir J. E. Tennent* 1907 *et seq.*—Grounds for concluding that the Dukes of Oldenburg had a better title to the Elsfleth toll than Hanover has to the Stade toll, *ib.* 1910. 1920-1934—Belief that until this country created a temporary title for Hanover, by the treaty of 1844, no right existed upon her part which could now be enforced against us, *ib.* 1947-1952—The fact of having paid the dues so long should not prevent us from disputing the legality of the title, *ib.* 1953-1960—Belief that on the sitting of the Riverain Commission, Great Britain might claim absolute exemption, *ib.* 1993-1996.

The foundation of the claim of Hanover to levy the Stade toll was a treaty with Denmark in 1717, and a further treaty with Sweden in 1719, by which, whatever right those countries possessed, was transferred to the Elector of Hanover, *Rep.* p. 111.

See also *Abrogation of Treaty.* *Commission of 1841.* *Navigation of the Elbe.* *Redemption of Tolls.* *River Toll.* *Riverain Commission.* *Sea Toll.* *Tariff.* *Treaty of 1844.* *Vienna, Treaty of.*

*Transit Duties.* Hamburg does not levy any transit duty on goods transported through Germany, *Sanders* 1030, 1031—The transit dues by the German railways must be considered in calculating the effect of the Stade toll, *Sir J. E. Tennent* 1793.

See also *Zollverein, The.*

*Treaty of 1844.* Reference to a committee of mediation, in 1844, between Hanover on the one side, and Hamburg and Denmark on the other side, which led eventually to a treaty being ratified, but not until there had been frequent protests by Hamburg against such treaty, *Wurm* 109—Consideration of the part taken by England in assenting to the treaty of 1844, notwithstanding that, in 1841, Lord Palmerston wrote an official communication

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lication, laying down certain principles with which the treaty is not in accordance, *Wurm* 109-120.

The treaty between England and Hanover, in 1844, was founded upon the Dresden convention, an abatement of one-third per cent. being obtained on certain articles, *Ward* 1119, 1128, 1129—One objection to the treaty of 1844 is, that several articles are charged at a higher rate than the basis agreed upon, which is contrary to the spirit of the treaty, *ib.* 1134, 1190, 1191, 1198-1202.

The inconveniences of the toll have been considerably diminished since 1844, *Sir J. E. Tennent* 1738—In any new negotiation we should suffer by the moral effect of having entered into the treaty, *ib.* 1950, 1952, 1997-1999—The treaty does not by any means establish the title of Hanover, *ib.* 2000—Lord Aberdeen was Foreign Minister at the time of the treaty, *ib.* 2054.

See also *Abrogation of Treaty. Belgium. Reductions in 1844.*

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*United States.* The United States pay 3 per cent. towards the tolls, *Hargreaves* 336—Strong feeling of the United States on the subject; impression, however, that they would pay their share towards capitalisation, *Ward* 1235-1239.

*Unloading of Vessels.* Vessels are allowed to break bulk at Hamburg before the toll is paid, *Hargreaves* 355-358.

*Upper Elbe Tolls.* Upon the Upper Elbe, above Hamburg, heavy tolls are levied, *Hargreaves* 288, 289—Respect in which the abolition of the dues would be a relief as regards the heavy tolls on the Upper Elbe, *ib.* 332-334, 338-340—If the Stade toll be abolished, there would still exist a strong complaint against the heavy dues on the Upper Elbe, *ib.* 460-462.

In considering the effect of the Stade toll upon British commerce, the tolls on the Upper Elbe must be included in the consideration, *Sir J. E. Tennent* 1793—Impression that the tolls upon the Upper Elbe amount to cent. per cent. upon the freights; their effect is infinitely greater than the Stade tolls, *ib.* 1831—The tolls upon the Upper Elbe amount to about 120,000*l.* a year, *ib.* 1911—Hamburg, in its endeavour to effect a reduction or abolition of the Upper Elbe tolls, does not contemplate any contribution from foreign States, *ib.*—Probability of the Upper Elbe tolls being extinguished by the same means as the Upper Weser tolls, *ib.* 1916, 1917.

*Upper Weser Tolls.* Removal, since January 1857, of the tolls upon the Weser, which probably enables Bremen more successfully to compete with Hamburg, *Glover* 707, 713-719, 762—Recent relinquishment voluntarily of the toll on the Upper Weser, *Sir J. E. Tennent* 1912-1915.

## V.

*Vienna, Treaty of.* The Stade toll is directly at variance with the spirit of the Treaty of Vienna, *Hargreaves* 458-461—Opinion that by the operation of the Treaty of Vienna, the toll should have been abolished by the first Riverain Commission, which was subsequently assembled to regulate the navigation of the Elbe, *Sir J. E. Tennent* 1970 *et seq.*—It is quite open to Great Britain to determine the treaty of 1844, and to demand the full performance of the engagements sanctioned by the Treaty of Vienna, such engagements not having been fulfilled by the Riverain Commission, *ib.* 2000-2020.

## W.

*Ward, John.* (Analysis of his Evidence.)—Her Majesty's consul-general in Saxony, resident at Leipzig, 1106—Was engaged on the part of Great Britain upon the Commission which sat in 1841 relative to the Stade tolls, 1107-1110—Proposed at the Commission that one-sixteenth per cent. should be taken as the basis of revision, 1110—The two Hanoverian Commissioners refused to admit any general basis, save the tariff then in force, *ib.*—This tariff comprised no less than 6,688 items of charge, *ib.*

Several objections urged subsequently by Hanover to any revision upon the principle of a basis of one-sixteenth per cent., 1110—Way in which witness answered the arguments of the Hanoverian Government, and showed that the title of Hanover to anything beyond one-sixteenth per cent. was bad, 1111—Witness's views were approved by the British Government, but the Hanoverian Government insisted upon rejecting them, and the consequence was that the Commission terminated without coming to any revision, 1111-1113.

*Ward, John.* (Analysis of his Evidence)—continued.

It was admitted at the Commission of 1841 that Hanover had a right to levy some tolls at Stade, 1114-1116—Subsequent revision of the tolls by the Riverain Commission at Dresden in April 1844, one-fourth per cent. being taken as the basis, 1117-1122—The treaty between England and Hanover in July 1844 was founded upon the Dresden Convention, an abatement of one-third per cent. being obtained on certain articles, 1119, 1128, 1129—The tariff consented to by the treaty of 1844 is an improvement upon the old tariff, though not altogether satisfactory, 1123-1127, 1134 *et seq.*

The tariff adopted at Dresden in 1844 was adjusted to be taken by weight on the principle of one-fourth per cent. *ad valorem*, 1130-1133, 1143—It was provided in 1844 that there should be a revision every twenty-five years, in order to adjust the relative proportions between the weight and the value, 1133, 1134—One objection to the treaty of 1844 is, that several articles are charged at a higher rate than the basis agreed upon, which is contrary to the spirit of the treaty, 1134, 1190, 1191, 1198-1202.

The cocket, or Custom-house document, now required in reference to the tolls, is wholly unnecessary in addition to the invoice, 1134-1137—The fact of the pound weight at the port of lading being taken as the standard of weight, operates so that English goods pay 10½ per cent. more than they ought, 1138-1141—Dues are also charged for a quarter of a hundred-weight, in the case of fractions of that amount, 1141, 1142—If the treaty of 1844 were abolished, England would be in a worse position, as she would be liable to the full duties under the Dresden Convention, 1144, 1145, 1178-1184, 1240-1242—In some cases it is an advantage to pay by weight, 1146, 1153—Coals are excepted from the basis in the treaty of 1844, but pay much more than they ought, 1147-1154—The abrogation of the treaty would not affect the rate charged for coals, which depends upon the Elbe convention, 1154, 1184, 1197.

Belief as to the legality of the acts of the Riverain Commission in 1844 in fixing upon a basis of one-fourth; authority under the treaty of Vienna for the acts of the Commission, 1155-1169, 1181-1183—There have been some protests by this country in regard to the rate of charge previously to 1844; 1164, 1165, 1168, 1169—There have been one or two meetings of the Riverain Commission since 1844, but there has been no alteration in the tariff, 1170-1174—This country can terminate the treaty by giving twelve months' notice, 1175, 1177.

A redemption of the tolls would be a most desirable thing for the British trade, 1185—The obstructions and disputes under the present system are most vexations, 1185-1190—Hanover receives about 50,000*l.* a year from the dues, about 15,000*l.* of which is paid by England, 1192-1196—Impression that Hanover would not be indisposed to a capitalisation upon fair terms, 1203—Reference to a calculation by the Governor of Hamburg, made upon the principle adopted in the case of the Sound dues, that the total sum required to capitalise the Stade tolls is 447,593*l.*, and that Great Britain's share of this amount is 227,451*l.*; 1204-1209.

The trade of Harburg has largely increased since its exemption from the tolls, 1210-1212—Abolition of the tolls would partly benefit the local importers and consumers, and partly the British producers, 1213-1217—Particulars as to the compensation given to the Grand Duke of Oldenburg, many years ago, in consideration of the abolition of the tolls at Elsfleth on the Weser, 1219-1232—Further statement as to the expediency of redeeming the tolls; nature of the negotiation desirable for the purpose, 1233-1242.

Belief that most of the States interested would be willing to contribute, 1234—Strong feeling of the United States on the subject; impression, however, that they would pay their share towards capitalisation, 1235-1239—Other States would not forfeit any present advantages if Great Britain were to determine her treaty of 1844, without reference to compensation, 1241, 1242.

*Weight.* The duties are charged by weight, except in the case of bullion, which is charged *ad valorem*, *Hargreaves* 239-241—In consequence of the charge being by weight, English goods pay 10 per cent. more than French or German goods, *ib.* 252-254, 269-276.

The tariff adopted in Dresden in 1844 was adjusted to be taken by weight, on the principle of one-fourth per cent. *ad valorem*, *Ward* 1130-1133, 1143—The fact of the pound weight at the port of lading being taken as the standard of weight, operates so that English goods pay 10½ per cent. more than they ought, *ib.* 1138-1141—Dues are also charged for a quarter of a hundred weight, in the case of fractions of that amount, *ib.* 1141, 1142—In some cases it is an advantage to pay by weight, *ib.* 1147-1154.

Doubt as to the precise rules upon which the dues are levied with respect to quality and weight, *Wood* 1647-1655.

The tolls in 1855 came to about 3*s.* 4*d.* per 100 lbs. weight, *Sir J. E. Tennent* 1752—Increased export from England since 1851 of articles which pay the higher rate in proportion to the weight, *ib.* 1760—Much higher average of the tolls for each 100 tons previously to 1844 than since that year, *ib.*

*See also Coals.*

*Weser,*

## Report, 1857-8—continued.

*Weser, The.* Character of the navigation of the Weser; how regulated, *Ward* 1229, 1230.

See also *Elsfleth Toll.*      *Upper Weser Toll.*

*Wood, Nicholas.* (Analysis of his Evidence.)—Is President of the Institute of Mining Engineers, 1583—Is extensively interested in coals in this country, both as a proprietor and as mining engineer for several lessors, 1584-1588—Is also partner in a coal-field in the valley of the Ruhr, abutting on the Rhine, 1588-1590—Explains the extent of this coal-field, the thickness of the coal seams, and the quality of the coal, 1589-1593. 1598-1600—There are very extensive beds of ironstone on each side of the Rhine, more especially near Coblenz; this ironstone is of excellent quality, and is taken as a back freight in the coal vessels to the Ruhr Valley, where several iron furnaces have been erected, 1594-1599.

Price of working the coal-beds in the Ruhr Valley, 1600-1603—Great demand for this coal, which fetches 8s. or 9s. a ton at the pit's mouth, 1605. 1612, 1613—Means by which the coal from this district is conveyed to different parts of Germany, and enters into competition with English coal, 1606-1611—Magdeburg may be taken as the centre of competition between the English coal and the Ruhr Valley coal, 1609. 1611—Facilities and cost of the transmission respectively of the English and the Ruhr Valley coal to Magdeburg; the advantages in the latter case are such that the English coal will in time be driven out of Germany to a considerable extent, 1610 *et seq.*, 1656, 1657. 1668 *et seq.*

Very little English coal is taken to Harburg, 1636—Sailing vessels, as well as screw colliers, take the coal to Hamburg, 1637—Considerable disadvantage to English coal, by reason of the Stade dues, in its competition with the German coal, 1638 *et seq.*—The Stade dues are, on an average, about 2½ per cent. on the value of the coal at Hamburg, but in some instances come to seven per cent. on the value at the place of shipment, 1640-1653. 1726, 1727—Doubt as to the precise rules upon which the dues are levied with respect to quality and weight, 1647-1655.

Transmission of coal from England to Berlin *via* Stettin since the abolition of the Sound dues; manufacturing coal is not sent from this country to Berlin, 1658-1667—Particulars as to the higher freight to Stettin than to Hamburg, 1659-1662. 1667. 1699-1706—At Hamburg the dues on coal are probably paid entirely by the consumer, but at Magdeburg, &c., where the competition is severe, are paid by the producer, 1671-1679—Much less cost of labour in the Ruhr Valley than in the English coal districts, 1690-1692. 1707-1719.

Advantage of every facility being given to the export of small coal, or screenings, to Hamburg; though sold comparatively at a loss, it must be burnt if not sold at all, 1692-1698. 1720. 1727—English shipping has for the last year or two been in a very distressed state, 1720-1723—Screw colliers have largely superseded sailing colliers, and have led to reduced freights, 1723-1725. 1728—Impression that only a small quantity of coal is conveyed from this country to Hamburg in Hamburg vessels, 1729-1736.

*Wurm, Professor Christian Frederick.* (Analysis of his Evidence.)—Professor of History at Hamburg; has delivered some lectures, and written a pamphlet upon the commercial policy of the different German States, 1-3—Has lately devoted considerable attention to the question of the Stade dues; has had free access to the records of the city of Hamburg on the subject, 3, 4.

Considers that there is no legal or constitutional right to levy the dues as they are at present; quotes sundry authorities in support of this conclusion, 4. 8. 11—Explains the particulars of the original grant of the dues as made in the year 1038 by the Emperor Conrad the Second to the then Arch-bishop of Bremen, 5-8. 27, 28—The city of Bremen is independent of the Duchy of Bremen, in which Stade is situate, 7—Since the original grant to the Archbishop of Bremen the dues have changed owners several times, and have not, for centuries, been appropriated to any purpose analogous to that of the original founder, 8.

Explanation of the circumstances and terms under which, at the Peace of Westphalia, in 1648, the King of Sweden became possessed of the dues, 10-38—Reference to a document of the year 1613 as containing a tariff of the tolls as levied at that period, and which tariff was to be returned to under the cession of Bremen to Sweden in 1648, 12-26—The King of Sweden, however, obtained or assumed a power to levy the increased dues which had been in force, under the Thirty Years' War, subsequently to 1613; 12—The principle of the tariff was a charge of one-sixteenth per cent., 17-19. 23. 87-93.

There have from the first been constant protests against any innovations in regard to the toll as originally granted, 28—Proceedings with reference to the dues during the interval between their possession by Sweden and the conquering by Denmark of the duchies of Bremen and Verden, 39-44—Settlement of the question by treaty between Sweden and Denmark in 1692; tariff then agreed upon, 41—Details of the transactions, more especially between Denmark and England, anterior to the cession by Sweden

*Wurm, Professor Christian Frederick.* (Analysis of his Evidence)—continued.

Sweden in 1719 of the duchies of Bremen and Verden to the King of Great Britain, as Elector of Hanover, 45-59. 80-84.

Hanover, on becoming possessed of the dues, declared that she should strictly adhere to the legal rate as settled under the King of Sweden in 1692, but she acted in a very different manner, 60 *et seq.*—Reference to certain documents, as showing the progressive manner in which Hanover dealt with the dues, as compared with her claims under the tariff of 1692; 67-79—According to the treaty of 1692 the basis of the toll was an *ad-valorem* duty, equivalent to about one-sixteenth per cent.; but Hanover has since entirely revised this tariff, and largely increased the charge in several instances, 85-95.

Probable demand by Hanover that the tariff of 1692 be reverted to, if existing treaties be abolished, 96—General feeling, on the part of the Elbe-bordering States, that Hanover has no right to levy the tolls just as she pleases, and that the whole matter should be revised, 97-99—Statement by Hanover, on some occasions, that the toll was a maritime toll, and on other occasions that it was a river toll, 99-109—Explanation as to a certain declaration relative to the claims of Hanover, as put forward by the Hanoverian Ambassadors, at the River Elbe Navigation Committee, at the Congress of Vienna, in 1815; 100-109—Protest made in 1821 and 1824 against the dues being levied as a maritime toll, 109.

Reference to a committee of mediation, in 1844, between Hanover on the one side, and Hamburg and Denmark on the other side, which led eventually to a treaty being ratified, but not until there had been frequent protests by Hamburg against such treaty, 109—Consideration of the part taken by England in assenting to the treaty of 1844, notwithstanding that in 1841 Lord Palmerston wrote an official communication laying down certain principles with which the treaty is not in accordance, 109-120.

Nature of the reductions and concessions made by Hanover in 1844 as regards English ships and cargoes, 119. 125—If the treaty of 1844 were brought to a termination, Hanover would probably try to revert to the tariff of 1821, as put forward by royal edict, 121-124—Impression as to other nations being favoured by treaty in the same way as England was in 1844; 126-128—Belief as to Hanover being entitled to charge lower rates in the case of some nations, whilst as regards other nations a higher rate may be demanded, 129.

*Wurm, Professor.* Statement put in by Professor Wurm, in conformity to an injunction of the Committee, *App. p.* 141-144.

## Z.

*Zollverein, The.* English goods imported to Hamburg do not come into the Zollverein, but go to the north of Europe, *Hargreaves* 594-598—Goods landed at Hamburg, and passing through the Zollverein, would be liable to the transit duty, *ib.* 600-604.

See also *Elbe-bordering States.*

# R E P O R T

FROM THE

SELECT COMMITTEE

ON

**HARBOURS OF REFUGE;**

*TOGETHER WITH THE*

PROCEEDINGS OF THE COMMITTEE,

MINUTES OF EVIDENCE,

AND

APPENDIX.

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*Ordered, by The House of Commons, to be Printed,  
17 June 1858.*

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*Martis, 9<sup>o</sup> die Februarii, 1858.*

*Ordered, THAT a Select Committee be appointed to inquire into the policy of making further Grants of Public Money for the Improvement and Extension of Harbours of Refuge.*

*Ordered, THAT the Committee do consist of Twenty Members.*

Committee nominated of—

Mr. Wilson.	Mr. Augustus Smith.
Mr. Lowe.	Sir Robert Ferguson.
Mr. Baring.	Mr. John Henry Gurney.
Lord Naas.	Mr. Traill.
Lord Adolphus Vane Tempest.	Mr. Duff.
Mr. Kendall.	Mr. Fergus.
Mr. Liddell.	Mr. Dodson.
Sir Frederick Smith.	Mr. Clay.
Mr. Philips.	Mr. Joseph Ewart.
Mr. Hassard.	Mr. Macartney.

*Ordered, THAT the Committee have power to send for Persons, Papers, and Records.*

*Ordered, THAT Five be the Quorum of the Committee.*

*Veneris, 12<sup>o</sup> die Februarii, 1858.*

*Ordered, THAT the Committee do consist of Twenty-two Members; and that Admiral Duncombe and Sir James Elphinstone be added thereto.*

*Lunæ, 15<sup>o</sup> die Martii, 1858.*

*Ordered, THAT Mr. Duff be discharged from further attendance on the Committee; and that Lord John Hay be added thereto.*

*Jovis, 17<sup>o</sup> die Junii, 1858.*

*Ordered, THAT the Committee have power to report their Observations, together with the Minutes of Evidence taken before them, to The House.*

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## R E P O R T.

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THE SELECT COMMITTEE appointed "to inquire into the policy of making further Grants of Public Money for the IMPROVEMENT and EXTENSION OF HARBOURS OF REFUGE ;"—HAVE considered the matters to them referred, and have agreed to the following REPORT :—

**Y**OUR Committee, which was originally appointed in the Session of 1857, and which reported the Evidence taken before it in that year, has continued its labours since its re-appointment at the commencement of the present Session. During the two Sessions, the Committee has examined Capt. Washington, Hydrographer of the Navy, Capt. Vetch, in charge of the Harbour Department of the Admiralty, Capt. Sullivan, the naval member of the Board of Trade, Mr. Coode, Engineer-in-chief for the Harbour of Refuge and Breakwater at Portland, Mr. E. K. Calver, R.N., the Admiralty Surveyor for the east coast of England, and other officers of the Royal Navy who have been engaged in surveys of different parts of the coast ; besides these, civil engineers, master mariners, and others who, from their intimate connexion with and knowledge of the subject, could afford information upon the matter referred to this Committee, have also been examined. The reference to your Committee was "to inquire into the policy of making further grants of public money for the improvement and extension of Harbours of Refuge," upon which it has agreed to the following Report :—

2. Your Committee has not thought it necessary to take any evidence as to the great and increasing extent of the shipping interests which are involved in the inquiry entrusted to it, inasmuch as there is an abundance of documents already before the House which sufficiently illustrate those points, but to which it may not be out of place to refer as bearing upon the observations which your Committee has thought it its duty to make. In the "Statistical Abstract" laid before Parliament in the present Session, at pages 30 and 31, accounts are given of the progress of the shipping of the United Kingdom for a series of years. From these accounts it appears that in 1843, only 15 years ago, the entire amount of British shipping which entered into and cleared from the ports of the United Kingdom was 7,181,179 tons, and of Foreign, 2,643,383 tons, making together an aggregate tonnage of 9,824,562 tons ; but that so rapidly has the shipping trade of the country increased in the interval, that in 1857 the quantity of British tonnage entered into and cleared from the ports of the United Kingdom had increased to 13,694,107 tons, and the Foreign shipping to 9,484,685 tons, making an aggregate quantity of no less than 23,178,782 tons, being an increase of 13,394,230 tons, or of *one hundred and thirty-six per cent.* in 14 years. Again, the same Returns show, that while in the year 1843 the tonnage of sailing and steam ships built and registered in the United Kingdom amounted only to 83,097 tons, in 1857 it had increased to 250,472 tons ; and lastly, it appears that while the entire number of men (exclusive of masters) employed in the registered vessels of the United Kingdom in the Home and Foreign trade, not including river steamers, in 1849 was 152,611, that number had increased in 1857 to 176,387 persons. Your Committee would remark, that the progress in our shipping thus referred to, however great it may appear, has continued steadily from year to year, which would seem to indicate that it



is destined to go on at about the same rate. The importance which your Committee attaches to the remarkable facts which these returns disclose, in connexion with the subject of its inquiry, is derived from a consideration, first, of the great extent of the property and life thus shown to be at stake, and next, from its rapid increase; for it must be obvious, on the one hand, that it is in proportion to the amount of the stake that an effort should be made on public grounds to afford the greatest possible security to our shipping, while it must be equally plain, on the other hand, that the more crowded the waters around our shores become by increased traffic, the greater must be the risk of accidents from collision and otherwise, and the more urgent must be the necessity for greater accommodation, and provision for safety. The practical conclusion which Your Committee derives from these considerations is, that however much it may appear that Harbours of Refuge are now required for the security of our shipping, it is a want which must become more and more urgent from year to year. And moreover, that inasmuch as the construction of such harbours must necessarily occupy many years, it is of the utmost importance that no time shall be lost, first, in determining upon some national policy in relation to them, and next, in giving practical effect thereto.

3. In order that The House may the better see the extent to which losses and damage are sustained by casualties at sea, the Committee has caused to be inserted in the Appendix to the Report of 1857, a wreck chart for the five years 1852 to 1856, both inclusive, compiled from the Admiralty and Board of Trade returns, and submitted to the Committee by the Hydrographer of the Admiralty. By referring to that map, and to the evidence of Captain Washington, it will be seen that the number of ascertained casualties in those years amounted to 5,128, being an average of 1,025 a year. These casualties consisted of—

1. Total losses by stranding or otherwise	-	-	1,940
2. Total losses by collisions	-	-	244
3. Serious damage, having to discharge	-	-	2,401
4. Collisions with serious damage	-	-	543
TOTAL			5,128

The total ascertained losses from all causes, therefore, amounted to 2,184 vessels, or at the average of nearly 437 in each year. The total reported loss of life connected with these casualties, was 4,148 persons, or upon an average of five years, nearly 830 in each year. In 1854, the loss of life amounted to no fewer than 1,549 persons. The value of the property lost by total wrecks, is estimated by Captain Washington at 1,000,000 *l.* a year at least, and by other losses and casualties at 500,000 *l.*, making together 1,500,000 *l.* as the annual loss to the country from these casualties on our coasts. Captain Sullivan considers this a very low estimate, and would place it higher. Your Committee, is disposed to adopt it, as at least not being an exaggeration of the truth. It may, therefore, be fairly stated that under present circumstances, the ascertained average loss upon the coasts of the United Kingdom amounts annually, to 830 human lives and property to the value of 1,500,000 *l.*; and this is independent of the numerous and serious losses both of life and property connected with the fisheries on the coasts.

4. In conducting the inquiry referred to it, your Committee has endeavoured to keep strictly in view the distinction between harbours constructed and required for the trade of particular ports, and harbours of refuge applicable to the general trade of the country, foreign as well as coasting, frequenting or passing particular parts of the coast. The former it has not considered strictly within the scope of its inquiry, although some evidence has been taken upon that class of harbours, when it was considered to bear, in some degree, less or more upon the question of refuge; your Committee will make some observations upon such harbours in a subsequent part of this Report. But it has been mainly to the latter, viz., harbours of refuge upon such parts of the coast, as being much frequented, are without any adequate place of safety into which vessels can run if overtaken by storms, that its attention has been directed. In this, the

chief

chief part of its duties, your Committee has found that its labours have been much abridged by the happy circumstance, that already considerable portions of our coasts are furnished with natural harbours of refuge; so that it has found it compatible with a discharge of its duties to confine its attention chiefly to a few important points. Along the whole of the west and north coasts of Scotland it has been shown that numerous and excellent natural harbours exist. For a portion of the east coast of Scotland, the Frith of Forth forms an excellent place of refuge. On the east coast of England, the Humber, the Wash, the Yarmouth Roads and the Thames afford, in different degrees, places of security. Between the Thames and the Land's End, extensive harbours are being constructed at Dover and Portland, in compliance with the recommendation of the Royal Commissioners of 1837 and 1844; excellent harbours already exist at Plymouth and Falmouth; and good shelter is found on other parts of that coast. Between the Land's End and the Solway some shelter is afforded in the Bristol Channel, and in the natural harbours on the Welsh coast; a large harbour is also being constructed at Holyhead, which has already, even in its incomplete and unfinished state, proved of great advantage to the extensive trade of that part of the kingdom. The coast of Ireland is well furnished with natural harbours, though works to a comparatively limited extent are required in order to render some of them in the most important localities more available for national purposes.

5. The most dangerous portions of the coast, where works of a national character are necessary and practicable, following the order in which the evidence has been taken, are, first, that part of the east coast of Scotland extending from the Pentland Firth, on the north, to the Firth of Forth, on the south; second, that part of the east coast of England extending from the Fern Islands, on the north, to Flamborough Head, on the south; third, that portion of the west coast of England extending from the Land's End to the south coast of Wales, and including the Bristol Channel; fourth, the points on the coast of Ireland to which reference has already been made, and one point in the Isle of Man. Independent of the three great works now in progress at Holyhead, Portland, and Dover, these constitute the works which your Committee is of opinion are most urgently required.

#### FIRST.—THE EAST COAST OF SCOTLAND.

6. Between the Pentland Firth, on the north-east extremity of the coast of Scotland, and the Firth of Forth, on the south, there is no harbour for the shelter of vessels caught in storms except Cromarty Frith, and that is so deeply embedded in the bay as to be practically unavailable for the great bulk of the shipping passing that line of coast, which is generally of a very bold and dangerous character. The traffic on this coast is very considerable. Independent of the coasting trade, and that with the Orkney and Shetland Islands, there is a large trade with Archangel and other ports in the North of Europe, and there is also a large trade between the ports on the west coasts of England and Scotland, and Ireland, and the ports in the Baltic and the North of Europe, passing to and fro through the Pentland Firth. Besides all this passing trade, a very large trade has of late years risen up, and is still increasing between the continental ports and the north-east coast of Scotland, in the export of fish. It appears in evidence that shipping resorts to the port of Wick alone to the extent of 60,000 tons a year for the export of fish. The want of a good harbour of refuge on this part of the coast has been very strongly urged upon your Committee by all the witnesses who have given evidence upon the subject, but principally by the experienced officers attached to the Admiralty. It has been urged mainly in respect to the trade of the coast, including the fisheries, but also, in some degree, for the use of the ships of Her Majesty's Navy. Three places have been pointed out as the best suited for the construction of such a harbour, viz., Wick, Peterhead, and Fraserburgh. The majority of evidence is, however, in favour of Wick, with reference especially to the fishing trade. Captain Washington and Captain Vetch, of the Admiralty, and Captain Sullivan, of the Board of Trade, whose attention had been specially and officially called to the question, and who had carefully examined it upon the spot, are very

decided in favour of Wick. On the other hand, Colonel Moody, of the Royal Engineers, has spoken in favour of Peterhead, but chiefly in relation to its advantages in a strategical point of view ; Captain Henderson, of the Royal Navy, has also spoken strongly in favour of the position of Peterhead. Mr. Stevenson, the well-known engineer, also, while he admitted the more extensive trade of Wick, and the necessity for a harbour there, gave the preference to Peterhead ; while Mr. Abernethy was of opinion that Fraserburgh presented advantages superior to any other place ; but while differences of opinion existed as to its being the best spot for a Harbour of Refuge in respect to some of its objects, all the witnesses concurred in opinion that for the purposes of the great fishing trade Wick is most important. It is stated that upwards of 1,700 boats fish off the coast of Caithness from all parts of Scotland, and even from England and Ireland ; of these at least 1,000 boats, manned by 5,000 men, belong to Wick, while only 400 boats belong to Peterhead, and a still smaller number to Fraserburgh. With regard to the formation of a Harbour of Refuge at Wick, your Committee thinks it necessary to state that the Commissioners for the present harbour in connexion with the Fishery Society, have it in contemplation to enlarge the present harbour, and are prepared to expend a sum of 45,000*l.* thereon ; the inadequacy, however, of the proposed plan and improvement for the objects required has been strongly pointed out by the officers of the Admiralty, and especially in the evidence of Captain Vetch, who produced a plan to the Committee by which the objections would be obviated, and sufficient accommodation secured for all the objects of the harbour, whether for the purposes of fishing, of trade, or of a naval station at a cost estimated by Mr. Coode, the officer in charge of the works at Portland, not to exceed 186,000*l.* It is understood that the Fishery Society is ready to apply the sum at their command towards this large work, in place of expending it upon the smaller work contemplated. The harbour proposed by Mr. Stevenson at Peterhead would enclose a space of 200 acres at low water, and of 100 acres within the three-fathom line, and is estimated by him to cost 335,000*l.* The plan proposed by Mr. Abernethy for the improvement of Fraserburgh he estimates would cost 80,000*l.*, and would furnish a sheltered area of 11 acres for vessels drawing 20 feet and upwards, and about 30 acres for vessels of a less class.

## SECOND.—THE NORFOLK COAST OF ENGLAND.

7. It appears in the evidence taken by your Committee, that between St. Abbs' Head and Flamborough Head, a distance of about 150 miles, every harbour along the coast, without any exception, has a bar at its entrance, more or less dangerous ; and that none of them can be entered at low water. This coast includes the important ports of the Tyne, the Wear and the Tees, besides those of Berwick-upon-Tweed, Blythe, Hartlepool, Seaham, Whitby, and Scarborough. Having reference to the great and rapidly increasing traffic to and from the ports included in this line of coast, and to the number of casualties upon it, your Committee cannot hesitate to express its opinion that this portion of the coast urgently demands the earliest consideration, with a view to lessen the enormous loss of life and property which annually occurs upon it, a great mass of which, as Mr. Calver has stated, arises simply from the want of a Harbour of Refuge in times of emergency. Captain Sullivan has shown that the entire tonnage of British sailing vessels annually clearing coastways from ports in England was 8,162,000 tons, and coastways and foreign, 15,796,000 tons ; and that of these quantities, the tonnage from the five ports of Newcastle, Hartlepool, Sunderland with Seaham, Shields, and Stockton, clearing coastways, was 3,733,000 tons, and coastways and foreign together, 5,160,000 tons ; so that the tonnage of these five ports represents fully 45 per cent. of the whole coasting trade of England, and fully 32 per cent. of the entire trade, coasting and foreign together. With regard to wrecks, Captain Washington states, that he has computed that one-half of the whole occur on the east coast of Great Britain, and fully one-half of that number between the Frith of Forth and the Humber ; this would represent at least 25 per cent. of all the wrecks on the coasts of the United Kingdom as occurring within that limit. Great and praiseworthy efforts have been and are being made to improve the approaches to some of the existing harbours on that coast, and especially at

at the mouth of the Tyne; but these are works more applicable to the special purposes of the ports in connexion with them, than to a general harbour of refuge so much required. With a view to such a work, Captain Washington says, "Tees Bay is the focus of wrecks on the east coast of England, and this bay includes Hartlepool, Stockton, and Redcar;" and he has no doubt that some part of Tees Bay is the best spot for such a national work. But while his impression is in favour of Hartlepool, which has been reported upon to the Admiralty by the late Mr. Rendel, yet it would require further consideration whether Hartlepool or Redcar, or which side of the Bay should be adopted. Captain Vetch and Mr. Calver both concur in his recommendation of Tees Bay as the best locality, and of Hartlepool as the most eligible spot. It appears that "at the instance of the Port and Pier Commissioners, the late Mr. Rendel was ordered to examine carefully into the subject of a harbour of refuge at this point, and that he reported strongly in favour of a harbour, by running out piers on the north and south side of the bay; the plan inclosed an area of 470 acres, having a depth of 12 feet and upwards, and of 325 acres having a depth of 18 feet and upwards at low-water spring tides; of which the estimated total cost was 800,000 *l.*, and the period required for completion about six years." Captain Vetch has, however, suggested that a breakwater, open at both ends, and placed in front of the entrance to the harbour, in somewhat the same form as the breakwater in Plymouth Harbour, would in many respects be preferable. The only other point of this coast which has been much urged upon your Committee as suitable for a harbour of refuge, as distinguished from the local requirements of individual ports, is Filey Bay, about half-way between Flamborough Head and Scarborough; and the arguments and facts put forward by Mr. Coode as an engineer, and by mariners who have long navigated that coast, are, in the opinion of this Committee, well worthy of being carefully considered before any final decision is arrived at upon the subject. It is stated by these witnesses that most of the vessels that are lost upon that part of the coast are laden vessels on their way southward; that they seldom leave their ports except with a fair wind, which carries them up as far as Flamborough Head, where, when overtaken by an adverse wind, they congregate in great numbers, sometimes as many as 300 or 400 at a time, causing frequent collisions, and in the last extremity are driven back to seek shelter in one of the ports to the northward, and that it is in the attempt to reach those ports that they founder at sea, or are lost in the attempt to cross the bars which encounter them at the entrance to all the harbours northward to the North. It is even stated that vessels frequently put back from Flamborough Head as far as the Frith of Forth; and it is contended that a harbour at Filey would afford the best means of sheltering such vessels, and of avoiding the serious losses now sustained. It is, however, necessary to observe, that there is some difference in the evidence as to the proportion of losses of laden ships, to which this argument applies, and of light ships. Mr. Coode states, that a breakwater, including the rocks of Filey Brigg, of 3,200 yards, would give an area of 200 acres, sheltered from every wind, with water deep enough for a line-of-battle ship; of 348 acres of a depth of three fathoms and upwards; of 403 acres of a depth sufficient for the largest colliers; and of 427 acres of one fathom and upwards, which would be suited for fishing boats; all equally sheltered from every wind. He estimates the cost at 860,000 *l.* This plan appears to have received less attention than the one for constructing a harbour of refuge in Tees Bay, but, for the reasons named, your Committee is of opinion that it merits further investigation; but whatever point may be decided upon competent authority as the best, your Committee desires to express its strong opinion, that a harbour of refuge on this part of the coast, of dimensions suitable to its large and rapidly increasing traffic, is urgently required.

### THIRD.—THE COAST FROM LAND'S END TO HARTLAND POINT, AND THE BRISTOL CHANNEL.

8. In considering this part of the coast, your Committee draws a distinction between the part extending from the Land's End to Hartland Point, and that further up, embracing the whole of the Bristol Channel on both sides. The evidence goes to show that the part of the coast up to Hartland Point is frequented

quented chiefly by small coasting vessels; it is shown that out of 3,221 casualties, 2,648 happened to vessels under 200 tons, 367 to vessels between 200 and 350 tons, 93 to vessels from 350 to 500 tons, and 113 to vessels above 500 tons. On the other hand, the Bristol Channel is frequented by foreign-going ships, rapidly increasing in number, and of large tonnage. With respect to the first of these two divisions, the two points most strongly recommended to your Committee for the construction of a harbour of refuge within this district are St. Ives and Padstow. The points in the Bristol Channel to which the attention of the Committee has been chiefly drawn, as offering the best security for the shipping frequenting it, are the Mumbles Head, Lundy Island and Clovelly. Mr. Abernethy, who thinks that the Mumbles is the most important point for a harbour of refuge for the Welsh coast and the Bristol Channel, produced a plan, by which he proposed to construct two breakwaters, together of the length of 1,760 yards, at a cost of 370,000*l.*, and which would afford a harbour of an area of 200 acres, with a depth of four fathoms at low-water spring tides, sheltered from all winds; on the other hand, it has been strongly contended by other witnesses that Lundy Island is the best point; much difference of opinion has been expressed before your Committee as to the respective merits of these places, and they will require a much more minute investigation than could possibly be given by your Committee before any point is actually decided upon. Your Committee would only further state upon this part of the subject, that judging by the state of things which has arisen in the crowded coal ports of the North of England, any place which is finally determined upon for affording refuge to ships frequenting the Bristol Channel should have special reference to the rapid development of the coal and iron fields in South Wales, and to the increasing sea traffic which is arising therefrom.

#### FOURTH.—THE COASTS OF IRELAND AND THE ISLE OF MAN.

9. The chief points on the coast of Ireland to which the attention of your Committee has been directed with a view to afford shelter for vessels in distress are Carlingford Bay, the Skerries, near Portrush, Waterford and Wexford, though the latter partakes more exclusively of the character of a private trade harbour. In these places there are already natural harbours, only requiring some improvements in order to render them more available as harbours of refuge for passing ships. With respect to Carlingford Bay, Captain Washington is of opinion that an outlay of 20,000 *l.*, to be expended in the removal of a bar, would make it "an admirable harbour of refuge, which would supply all the serious want that is now experienced on the coast between Belfast Lough and Dublin Bay;" and engineers, as well as practical mariners sailing from Liverpool, have given evidence of the most important character as to the great advantages which the foreign trade from Liverpool to America and other places would derive from a harbour at that point. With regard to Waterford, it is similarly circumstanced. It is described by Captain Washington as "a very fine natural harbour, but with a flat or bar having only 12 feet over it at low-water spring tides. To dredge a channel through that to a depth of 18 or 20 feet, at a cost of 20,000 *l.*, would make it a good harbour." And Captain Washington adds, that "there are no two spots in the whole of the United Kingdom at which good harbours of refuge could be got at so small an outlay as at Waterford and Carlingford; 20,000 *l.* laid out on each of those would render them available at all times for the greater part of the vessels that navigate the Irish seas." These would especially include the whole of the foreign trade to and from Liverpool, as well as all the other ports on the west coast of England. Your Committee has no hesitation in expressing its opinion in favour of these particular works. With regard to Wexford, your Committee is not prepared to speak with so much confidence. There is no doubt that the expenditure of a sum of about 40,000 *l.*—and it is understood that there is a sum equal to half of that amount under charge of the Admiralty for this harbour—would greatly improve it; but it appears that even then "it would be available only at tide-time, and then only for vessels of a light draught of water." And besides this, it appears that the sands with which the harbour is beset at the mouth are constantly shifting, so as to change the character of the channel. With regard to the Skerries, Portrush, on the north coast, the circumstances are

very

very peculiar. There is at present a large bay to the eastward of which a high headland stretches northward, so as to form a protection from the east and south-east. From the western side of the bay a chain of rocks, called the Skerries, stretches from the land in the form of a segment of a circle towards the north-east, but with considerable openings at intervals. The prevailing wind on that coast which is most dangerous to the navigation is from the north-west, against which the Skerries form at present a partial protection, and if the interstices in the chain already referred to were filled up, the protection would be perfect, and a harbour of the finest and most secure character would be formed, easily entered at all times, and without risk of detention as soon as the weather moderated. The facilities for making a first-class harbour of refuge at this point are ably and clearly pointed out by Sir John Burgoyne, Sir James Dombrain and other witnesses; and Mr. Dargan, the eminent contractor, stated to your Committee that the whole might be accomplished for a sum of 100,000 *l.* Two witnesses who have been in the habit of sailing from the Clyde and Liverpool to America, gave evidence as to the great importance which a harbour of such a kind would be on the North coast of Ireland, when from the state of the winds it was desirable to go or come north about; and it appeared that the existence of such a harbour would induce ships to adopt that route much more frequently than they now do, thus relieving to that extent the overcrowded channel round the South of Ireland. Your Committee is of opinion that this is a work well worthy of favourable consideration. With regard to the Isle of Man, Captain Washington speaks of it as "the beacon of the Irish sea," and is of opinion that a small harbour of refuge is required to be constructed outside the present tidal harbour of Douglas. Captain Vetch has stated to the Committee that he has already, at the request of the Admiralty, designed a pier in that situation, and for the purpose named, which would be available for shelter for vessels passing through those seas, as well as a protection to the large herring fleet frequenting that island; at the same time, your Committee thinks it right to state that its attention has been called to Port Erin as a suitable place for a harbour of refuge.

10. The various works which your Committee has thus enumerated as being needful purely or mainly for harbours of refuge, and which appear to it to be of a character which can only be executed as national public works, and as such, under the direction and control of the Government, are:—1. A harbour of refuge on the North-east coast of Scotland, estimated to cost from 80,000 *l.* to 335,000 *l.*, according to the site that may be selected. 2. A harbour of refuge on the North-east coast of England, at an estimated cost of from 800,000 *l.* to 860,000 *l.* 3. An extension of the present harbour at St. Ives, at a cost of 174,000 *l.*, or if Padstow is adopted, at a cost not exceeding 35,000 *l.* 4. A harbour of refuge at the Mumbles, or at some place in the Bristol Channel, at a cost of 300,000 *l.* 5. An improvement of the harbour at Carlingford, at a cost of 20,000 *l.* 6. An improvement of the harbour at Waterford, at a cost of 20,000 *l.* 7. The construction of a harbour of refuge at the Skerries, Portrush, at a cost of 100,000 *l.* 8. A pier in the Isle of Man, at a cost of 40,000 *l.*; making a total not exceeding the sum of 2,000,000 *l.*; or, if spread over a period of 10 years, at the rate of 200,000 *l.* a year.

11. Your Committee is desirous to remind the House, that it has not, in the most important instances where harbours of refuge are now recommended, ventured to determine the particular spots upon which they should be constructed. The various grounds upon which the merits of these different places rest are of a nature necessarily so technical in their character, involving questions of engineering and of nautical skill, as well as matters of fact as to the facilities which the different spots offer for construction by the supply of material and other considerations, that it has appeared to your Committee that they could only be satisfactorily determined by a Royal Commission, composed in part of professional persons, and having the best professional assistance, and in some cases after a full investigation upon the spot. Your Committee has therefore come to the conclusion to indicate only in general terms the localities where these important works are required, and it has no difficulty in strongly recommending that a Royal Commission should immediately be appointed, with a view of deciding the particular spots within the limits indicated at which it will be most beneficial for the public at large that such



harbours of refuge shall be constructed. Your Committee is of opinion that, considering that the harbours now recommended are chiefly with a view to the security and development of the mercantile marine of the country, the mercantile and shipping interest should be represented upon such Commission.

12. Your Committee will now proceed to consider the evidence it has taken upon the important financial questions which have arisen in the course of its inquiry as essentially connected with the subject. The estimated cost of the proposed improvements has already been stated as not exceeding 2,000,000*l.*; or, if spread over 10 years, at the rate of 200,000*l.* a year. This is no doubt a large sum, but your Committee would respectfully submit that it is comparatively a small one for works having for their object the diminution of danger in the navigation of our coasts, which at present involves an annual loss of lives to a number exceeding 800, and of property to the amount of 1,500,000*l.* Not that the Committee would wish it to be inferred that it is of opinion that the whole of those losses would be obviated by the proposed works; but it is of opinion, that if a considerable portion were prevented, of which there can be no question, the case is strong enough to induce a great effort to be made by Parliament and the Government to accomplish them. Your Committee would remark, that although this large annual money loss, to which reference has been made, is extensively distributed among underwriters, mutual insurance offices, and private shipowners, and is thus not so obvious in its full magnitude at first sight, yet that it nevertheless constitutes a real abstraction to that amount from the national wealth; and that any expenditure the effect of which shall be to prevent or mitigate these losses, may fairly be regarded, in a national point of view, as an investment the value of which is to be judged by the amount of the national saving effected thereby. Regarded from this point of view, and supposing that the important works now suggested were to prevent a loss of property only to the extent of 30 per cent., the whole outlay required would be defrayed by less than four years' saving effected by it. With regard to the saving of life—a question which, in public importance, and as involving the necessity of action on the part of Parliament, must be looked upon as one of much greater moment—your Committee would remark, that the proposed works would in all probability be the means of saving a larger proportion than in the case of property. The loss of life is generally the result of total wrecks, and it is that class of casualties that would be most avoided by harbours of refuge.

13. But in reverting again to the purely financial part of the subject, your Committee would now consider the evidence which has been given to it, in relation to the justice and the policy of rendering these harbours in part self-supporting by means of a charge upon shipping. It is no doubt the case, in respect to trading harbours, that they are as a rule entirely supported by dues levied upon the ships which use them, and that this principle is recognised as being at once a just and beneficial one; just, because those for whom conveniences are made by corporate bodies and others, are bound to pay to the communities at whose cost they are made, a fair remuneration for the service thus conferred upon them; beneficial, because it is only by an equitable arrangement of this kind that communities, whether large or small, can be expected to make these improvements so useful to the shipping trade. Now it appears to your Committee that the principle which distinguishes private trading harbours from harbours of refuge, and which points them out to be the objects of local and private enterprise, is, that they are constructed principally in reference to the wants and convenience of such localities; whereas Harbours of Refuge upon our open coasts are constructed, not for the use of any individual port or community, but for the use of all the shipping, both British and Foreign, frequenting or passing our coasts; and it seems, therefore, to your Committee, that the entire community of the country and the Government stand in the same relation to Harbours of Refuge as individual communities and corporations stand in relation to private trade harbours. It has been maintained that Harbours of Refuge bear much the same relation to shipping as lighthouses; that both are intended for general security and protection, and that both are more useful at times of emergency than at others, and that there is no reason by which the one is made self-supporting by a charge upon shipping, that does not equally apply to the other. It may be contended, that inasmuch as coasting vessels on the sea are now run in competition

competition with railways, there would be a manifest injustice to the owners of the latter, if their competitors were not only placed at an advantage as compared with them, by having their security provided for so as to lessen their risk at no cost to themselves, but that they (the owners of railways) should actually bear the burden as a part of the taxpayers of the community; and this point will appear more clear, when it is considered that every diminution of risk at sea operates as a direct money advantage to shipowners, by reducing the amount paid for insurance. In the case of vessels mutually insured by the body of shipowners, as is commonly the practice in the ports in the north of England, every reduction of loss must operate as an immediate money gain; and with regard to those which are insured by underwriters, it is well known that the rates are determined by a close calculation of the risk as shown by an average of the losses; and it is therefore in proportion as the average number of losses diminishes, that the charge becomes reduced. In this view it is obvious that the dues paid by shipping for lights, and for Harbours of Refuge, can only be regarded in the shape of an insurance against risk, and as reducing to some great extent than such dues amount to, the charge which would otherwise be made to cover the increased risk if there were no lights and no harbours. Captain Sullivan has shown that if the premium of insurance upon colliers between Newcastle and London were, in consequence of the establishment of a great Harbour of Refuge, reduced only by one-twentieth, it would afford a sum sufficient for all purposes to be collected for dues for such harbour, upon the principle that all vessels for which it was available contributed. Another reason which appears important to your Committee in favour of the view of these works being constructed upon the principle of being in part self-supporting is, that upon that principle there is much greater probability of their being undertaken and carried forward with spirit and speed than if it were attempted to consider them as a charge to be finally defrayed by the public—from the Consolidated Fund; and your Committee is of opinion that such is the importance of these harbours to the shipping interest, that it would be infinitely preferable to submit to the small charge which will be necessary for the purpose, than to hazard their postponement for an indefinite period of time; but considering the great services that will accrue to national wealth, as shown in paragraph 12, your Committee are of opinion that a considerable proportion of the money necessary to construct the works should be contributed from the public Exchequer.

14. But admitting that every principle which regulates respective private interests in respect to the expenditure of public money, points to the justice of a charge being made upon shipping for the use of the harbours, a question of importance has been raised before your Committee, which it is of the utmost consequence should be clearly determined. On one hand it is contended that a small and uniform charge should be made upon all ships navigating the part of the coast upon which these harbours are proposed to be constructed, upon the principle that the expenditure is incurred equally for the safety and security of all, in the case of need, and that all alike will profit by the reduced risk and the consequently smaller premium which will be paid for insurance. This would be treating Harbours of Refuge exactly as lighthouses are now treated in respect to the mode of their maintenance, by dues upon shipping. On the other hand, it has been contended—admitting that the principle of payment is a right one—that the charge should be confined exclusively to those ships which actually use the harbours, and that it should be sufficient to raise the necessary sum of money. This would be treating Harbours of Refuge in the same way as private trade harbours are now treated, those vessels only paying which enter them. It is contended, however, that there is in this respect the widest distinction in principle between the two classes of harbours; those of the one class are constructed chiefly for the private trade of the ports to which they are attached, those of the other for the general security and benefit of the entire trade passing the coast upon which they are constructed. There is, moreover, an important practical reason which has been brought before your Committee against the latter view of the case. It has been contended, and proofs have been adduced to maintain the reasoning, that such is the aversion of the masters of sailing ships to incur expenses on behalf of their owners upon their own responsibility, that they would too often rather incur great risks, which might



prove fatal, than take shelter in such harbours, especially as on this principle the charge would require to be considerable; and that thus the very object of the harbours would be frustrated to some extent. As the saving of life as well as property is the main object for the construction of such harbours, your Committee would wish a policy to be adopted in relation to them which will induce to their freest and most extensive use. Your Committee is further of opinion, that it is a manifest fallacy to conclude that only the vessels which happen from stress of weather to be driven into them, are those which derive benefit from them; but that all vessels, the security of which has been promoted by their existence, share equally, as has been shown by the diminished risk. On every account, then, your Committee is of opinion that the first named principle, that of making a uniform charge upon all ships passing such harbours in their course, is just in the abstract: first, because it is just that all should pay for a benefit in which all participate; second, because if a general charge is made, a very small one, which will be scarcely perceptible, will suffice, while if only ships which happen to require to take shelter are to pay, the charge must be large; and third, because in the one case every inducement would exist for freely using such harbours in case of need; while in the other case, a great inclination would exist to hazard the danger of the sea rather than incur the expense of seeking shelter. Your Committee is fully aware of the long and deeply rooted feeling so justly felt by those connected with shipping upon the subject of passing tolls. But this objection your Committee believes, from the evidence before it, has arisen almost entirely from the great abuses of that system in past times, when ships were required to pay passing tolls in respect to lights and harbours which did not lie in their course, and which could not be of any service to them, either as affording safety, or as reducing the estimated risk of their voyage. But it has been represented to your Committee, that since the light dues have been levied upon the obviously just principle of requiring vessels only to pay for such lights as lie in their course, the objection alluded to has entirely disappeared. And your Committee would upon this subject desire to express its opinion in the strongest terms, that if this principle is adopted in respect to dues for Harbours of Refuge, the greatest care should be taken to impose such dues only upon ships which in their natural course would pass such harbours, and which would therefore benefit by them.

15. Your Committee attaches so much importance to this part of its inquiry, as bearing upon the practicability of the works which it has recommended, that it is deemed desirable to extract the evidence given by Captain Sullivan and that given by Mr. Cowan. The following were the replies given by Captain Sullivan to questions from the Chairman.

1106. You think that 1,500,000*l.* a year would not be an over-estimate of the loss, broadly stated, of property by shipwreck and casualty on our coasts?—I should think it a very low estimate, because that would not be 1,500*l.* a piece for ship and cargo of those totally lost, leaving out the damaged ones; the wrecks are 837 the lowest year, which was the last year; the wrecks averaged roughly very nearly 1,000 a year, and at 1,500*l.* a piece, that would be 1,500,000*l.*; and I think that that is a very low estimate to take the vessels and cargo at, even allowing a large proportion for the vessels in ballast.

1107. The principle upon which you maintain lighthouses on the coast is by charging a toll to the vessels which use them?—Which pass them, or which are liable to pass them, even if they are rather out of their track. Vessels going to the north of Europe are charged with lights on the east coast of England to a certain extent, even though they may have a fair wind, and go straight away from them.

1108. And that charge is made upon the principle that lighthouses are established for the use of the ships navigating the particular seas where they are established, and therefore being to them an actual money value in the shape of security?—Yes.

1109. The principle upon which passing tolls have hitherto been regulated has been rather indiscriminate, and without regard to the ships that used or were likely to be benefited by those harbours upon which passing tolls have been charged?—Yes; and that has very properly caused a very strong feeling against them; for instance, vessels have paid for ports that they could not possibly use from their draught of water.

1110. The feeling against passing tolls, therefore, has been created by the injustice of vessels being charged with those tolls, which could not by any possibility avail themselves of the harbour for which they are so charged?—Certainly, I think so; I do not think, as a rule, that any parties connected with the shipping interest object to pay anything which they get a fair value for.

1111. Would it be in accordance with the same principle that you now charge for light-houses,

houses, if a small charge were exacted from vessels passing those parts of the coast whereon a harbour of refuge might be established?—I think all vessels would be glad to pay, for the sake of getting a harbour of refuge: that is merely an opinion; I do not know the opinions of men in the trade.

1112. What is the principle by which you now determine what vessels shall pay for certain lights?—The lights that they pass or might pass, I think; it is an old scale drawn up by the Trinity House and by the other Light Boards; the fixing of those does not rest entirely with the Board of Trade.

1113. The Trinity House determine what vessels clearing out from particular ports to other ports shall be charged with particular lights?—Yes, they are charged with every light they can possibly pass upon that route. For instance, vessels bound from Plymouth to the Baltic would pay for all the English lights on the east and south coast; I think as far north as Flamborough Head. I am not quite sure as to the exact limit, but it is in that way.

1114. It rests with the discretion of the Trinity House to determine what vessels shall pay for particular lights?—Yes.

1115. And, as far as you know, the principle adopted by the Trinity House in determining that, is that vessels shall pay for lights which they either do or may use in their ordinary route?—Yes, I think so, certainly.

1116. If the same principle were adopted with regard to harbours of refuge, can you see any distinction between the two to create a grievance on the part of the shipowners?—I think it would be a very difficult point to draw the line between vessels that passed them, so that there could be no doubt, and those that went in another direction, and there might be a difference of opinion whether they were likely to avail themselves of them or not.

1117. Would it be more difficult in the case of a harbour of refuge than in the case of a light?—I think perhaps the principle used in the light might be applied to it. My own idea is, rather than drawing a line, that supposing a toll was desirable for a good harbour of refuge, vessels coming to ports in its immediate neighbourhood, when they could get no shelter in bad weather, as a matter of course, to or from those ports, those vessels might pay a passing toll for it; and vessels passing from one part of the coast of England or Scotland to another passing the harbour might justly pay for it a passing toll, which would of course give them the right of entry to the harbour without any additional toll. Then in the case of vessels leaving and going across the North Sea that might possibly sometimes use it, but yet could hardly be said to pass it, a different toll might be levied upon them; they might pay a much higher toll for every time they used it.

1118. With regard to vessels sailing from the Thames to the north of Scotland, or to any of the intermediate ports north of Newcastle, there could be no doubt in that case that a harbour of refuge established in the Tees Bay would be strictly available for such traffic?—Certainly they must pass it.

1119. Therefore there could be no doubt that it would be available to the north and the south for that particular traffic?—None whatever.

1120. With regard to vessels sailing from the Thames to the Baltic, or the coast of Sweden, might not such a harbour of refuge upon that coast be available for vessels going in that direction?—Yes, for sailing vessels particularly, but not steamers; and yet it would be difficult to draw the line in fixing the toll that steamers should be exempted, and that sailing vessels should pay, and you could hardly say the steamers going nearly a straight course would pass it; they would in going to Scotland, but not in going to the Baltic from London.

1121. Take vessels coming from the Baltic, through the Pentland Frith, to the west coast, the harbour of Wick, if there were one established, would it be ordinarily available for those vessels?—Yes, decidedly; and they might fairly be charged a toll for it.

1122. That would be in the direct course?—Yes, it would be in the direct course.

1123. It would be, therefore, a question of degree and fine discrimination what vessels should pay a toll for any particular harbour of refuge that might be established?—Yes, I think so.

1124. And it must be determined upon somewhat similar grounds to those now adopted for the payment of light dues?—Yes, except that I think it would be better to draw a broad line, that vessels should pay on passing, in order to prevent any dispute upon that point, which would be sure to arise; all vessels going from Hull to ports on the Continent, or to London, would be to the southward of it; it is possible that a sailing vessel might be driven back, and use that harbour, but not generally; in all those cases I think that a harbour toll might be levied, and that a very much higher rate should be paid by vessels entering the harbour, which were exempt from the passing toll.

1125. Is there a general scale of light dues, or are they uniform?—No.

1126. Are the charges for any given light uniform to all vessels having to pay it, or is there a scale in proportion to the use?—No, it is uniform; the coasting vessels pay one-eighth only of the vessels going foreign, but it is the same per ton to all vessels that are charged.

1127. You suggested just now, I think, that in the case of vessels going from the Thames to the Baltic, or to Archangel, or to any other northern port, inasmuch as those vessels would be less likely to use a harbour of refuge on the east coast, a smaller uniform toll might be charged to those vessels than to coasting vessels, which would be more likely to use it?—No, I would exempt those vessels that could not be said to directly pass the port; but I would charge them much higher when they used the harbour.

1128. I understood you to suggest the former also?—No, I did not.

1129. Do you see any objection to a smaller charge being made to vessels going to the Continent, than to vessels going coastwise?—I think it would be very difficult to draw the line there, because sailing vessels would be very much more likely to use it going to and from the Baltic, than steamers.

1130. I do not speak of a line being drawn between sailing vessels and steamers, but I speak of a distinction between vessels going to the Continent, and vessels going to some part of our own coast?—I think it would be difficult.

1131. I do not speak of a graduated toll to different ports, but only of a distinction between vessels going to some part of our own coast, and vessels going to the Continent; there would be no difficulty in drawing that distinction, would there?—You could easily draw it, but I do not see how you would arrive at that difference of toll; it would be very difficult to fix a toll that would be fair to both.

1132. Would it be possible to fix any toll with reference to coasting vessels, which would be exactly just as between different ports?—I think so; I think that all vessels that must pass in their track might pay a small passing toll.

1133. Is it not quite clear that the amount of advantage which a harbour would give, would vary in some smaller or greater degree in the different ports to which it was available?—If vessels passed that harbour of refuge, then the toll might fairly be charged equally to all wherever they were going to.

1134. Is it not the fact, that in all these cases you must take a sort of average; you cannot go into a minute calculation of the precise advantage which a ship derives from the particular harbour or the particular light?—Certainly; and that is the reason why I think it would be so difficult to fix a toll upon vessels going across; I think it would be better to charge them only when going into the harbour.

1135. My questions have no reference to a scale of charges either for one class of ships or another, but to a general distinction between the utility to the one class, taken as a class, and to the other class, taken as a class; would it not be the case, that a vessel coming from the Thames to Newcastle, to Hartlepool, to Stockton, or any of those immediate ports, would have a greater advantage from a harbour established there, inasmuch as they must keep in towards the land to make for the port immediately for which it is destined, than for a vessel going to Leith that could keep out more at sea, and avoid the immediate danger of the coast in many states of the wind?—I think with a heavy gale on shore, which is the only time that the one vessel would use it; the other vessel would probably be glad to run for it too; but certainly with a south-east gale the vessel would run on for her port at Leith, while she must run into that harbour of refuge if bound to Newcastle.

1136. These are distinctions which, in point of practice, cannot be made?—I think between one coasting vessel and another, you can only make the distinction of their going by.

1137. There is no distinction in the charge for lights?—No, you must draw the line somewhere; and I think it would have to be vessels that did not pass it and vessels that did.

1138. Take the harbour of refuge in Tees Bay, all vessels going through the German Ocean would pass it at a greater or less distance?—A vessel is as near her port when she is off the coast of Norfolk as she is in Tees Bay, going to the Baltic, or very nearly so; she literally does not pass it; she leaves it at right angles to her course.

1139. But the entrance to the Baltic is further north considerably than Tees Bay?—Yes; but it is so far to the eastward that I could not say that a vessel was passing Tees Bay if she was bound to the Baltic from any port south of it.

1140. Still she is going through a sea, which in a strong south-easterly wind might make it desirable to run for the harbour of refuge in Tees Bay?—I could not say myself that she could be brought under a passing toll equally; I think you would have to exempt all vessels going to the Baltic from ports south of the harbour.

1141. You have suggested that in the event of vessels going to the Continent occasionally using the harbour of refuge, it would be better to charge a higher toll when they entered the harbour and used it?—Yes; all vessels which could not be brought under a passing toll, I would charge a higher toll when they entered the harbour.

1142. Do you not think that it would be a great advantage to vessels using or passing a harbour of refuge that there should be a uniform small toll charged upon all rather than a toll charged for the use of the harbour when it was used?—Decidedly; those that often passed it, because the toll might prevent their using it. In the case of a collier, for instance, they try to sail very cheaply, and where the owners complain of every pound that the captain spends, he would be induced to try to keep the sea rather than pay the toll and try the harbour; but if he had to pay a small toll every time, he would have every inducement to run in.

1143. You would recommend that a uniform toll should be charged of a small amount, and that no toll should be charged for the use of the harbour?—Decidedly.

1144. As the object of a harbour of refuge, in a national point of view, would be for the purpose of saving national property and lives, you think that every possible inducement should be given to shipowners and captains, without let or hinderance?—Decidedly.

1145. And therefore, taking that view of the case, you would say that under no circumstances should any toll be charged for the use of the harbour when it is used?—Unless in the case of vessels going from southern ports to the Baltic. You could not charge a toll on English vessels going from France to the Baltic; all that class of vessels might fairly be charged when they enter.

1146. Where it was possible to charge a small and much diminished toll, somewhat in proportion

proportion to the diminished chance of the harbour being used, would not the same principle rather point to that small uniform charge being made than for a large charge being made for the use of the harbour?—Yes; and perhaps to sailing vessels it might be more easily applied; but I think if you attempted to put a small toll on steamers going from London to the Baltic for a port there, the owners of the vessels would cry out against it very much; they would say, very naturally, that their vessels were not likely once in a dozen voyages to see it.

1147. In the case of sailing vessels there would be more chance?—In the case of sailing vessels there would be more chance coming back, not in going.

1148. Supposing there were a very small tonnage charge placed upon coasting vessels literally passing such a harbour, and a charge, perhaps very much smaller, say one-half, placed on vessels going to the Continent that might use it, would such a very minute uniform charge not be preferable to a large occasional charge when the vessels had to use the harbour, and which the larger it was of course would form a greater inducement for the captain to avoid incurring it?—I cannot think that you would be able to arrive at a passing toll for vessels so little likely to use it.

1149. Speaking of the harbour of refuge generally, the probability of its use would be a question of degree?—Yes, entirely.

1150. Might not the details of that nature be very safely left to the Board of Trade to determine from time to time what rates should be charged, and what vessels should be subject to those rates?—Yes; I think there could be no doubt about the passing toll; but it would be difficult to decide without consulting some of the parties interested in it.

1151. Of course the Board of Trade never would come to any decision without taking proper steps to ascertain the justice of the policy which they might adopt, but after all it would be a matter of detail to be left to some department to execute?—Yes, quite so; and a minor part too. The principal thing would be the toll. The toll would really not probably prove to be a tax on those vessels at all, for I have no doubt that it would be such a small per-centage on what they now pay for insurance, that the having a safe harbour under their lee, would reduce the insurance in an equal proportion with the toll. I believe a great deal more; I think I am speaking quite on the safe side. I have no doubt that the per-centage of losses which regulates the premium of insurance would decrease in that immediate neighbourhood; so that the per-centage of insurance paid would come down more than the toll. Roughly calculating, if a penny a ton was paid by all the trade passing that harbour, taking the trade from those five ports alone, about 500,000 tons from Newcastle may go northward; on the other hand, an equal quantity of the Scotch trade passes from Scotland to London; and they would fairly pay, so that while perhaps the 500,000 tons might be exempted, it would be made up by the Scotch trade; so that the trade of those ports we may fairly take at a passing toll of 1*d.* per ton each way, which would be 1*l.* a voyage for each collier, by which you would get something like 40,000*l.* annually; that is only 1*s.* 6*d.* per cent. on the value of the vessels, supposing them to be worth 1,500*l.* cargo and all. Now, I suppose the insurance must be one per cent. on each voyage.

1152. Are you aware that it is the habit of shipowners in Sunderland and the neighbouring ports to have what they call mutual insurances?—Yes; I am keeping them in view; the vessels are nearly all insured in mutual insurance companies, and therefore the per-centage of loss shows really the premium that they pay.

1153. I think the principle upon which those insurances are made is that of a mutual contribution amongst all the shipowners to make good any loss that takes place?—Yes; therefore, the per-centage paid is really the per-centage of premium, because there is no profit made; and I should suppose that 1*s.* 6*d.* per cent., which 1*d.* a ton a voyage would be, would be such a trifling per-centage upon what they must pay for their losses, that a harbour of refuge would save them a great deal more than they would pay for the toll.

1154. In point of fact, it would be no additional charge whatever to the shipping?—No; I think the harbour would be eventually a gain to them, even though a toll was paid for it.

The following is the Evidence of Mr. Cowan upon the same subject:—

3383. Mr. J. H. Gurney.] With regard to passing tolls levied upon vessels generally, do you consider that a proper mode of defraying the expenses of a harbour of refuge?—I think that the levying of passing tolls would be a very improper mode, and I would hardly like to be the individual with the hardihood in the present day to recommend it; anybody acquainted with the nature of passing tolls must be quite satisfied that the time has come when they ought to cease.

3384. Do you think that the opinion which you have now expressed is that which is entertained by the shipping interest at Newcastle generally?—Yes.

3385. Lord Naas.] How do you propose that the expenses of this harbour of refuge, if made, should be defrayed?—I think, if the harbour is constructed at the expense of the Government, it ought to be free.

3386. Do you think it would be fair to make a harbour of refuge, which would be entirely for the purposes of trade, and to which the shipping interest should not be called upon to contribute in any way?—If you call upon the shipping interest, and make the harbour in any particular locality where they are to pay when they go to it, it is my

opinion that it would be a failure; that is, that the ships would not go to it if they had to pay for it; vessels would go to it occasionally, but any calculation based upon the supposition of vessels taking it as a mere harbour of refuge, I would have no reliance upon, taking the coast practically.

3387. That is, as a harbour toll?—Yes.

3388. But, supposing the whole of the shipping interest whose ships are likely to use that harbour were called upon to contribute to the support of the erection of this harbour, do you think that that would be an unfair claim upon them?—Yes, I think so, taking the radius of a locality of a coast, and saying that every ship should pay so much whether she made use of it or not; you would find a host of opposition to such a project, I have no doubt, all the way along the coast.

3389. Do you think that the existence of a large harbour of refuge upon the east coast of England would have any effect upon the insurance paid upon ships?—Not at all; I happen to be a director of an insurance company, and have been so for many years, and I would say certainly not at the present moment. When the thing has worked out in practice, and when it is really found, by statistical evidence, that the risk is diminished, then would be the time; but it would be a great length of time before you would see the effect of it.

3390. Supposing it were found that the existence of a harbour of refuge on the east coast of England would materially reduce the number of wrecks, do you think that the cost of insurance upon the ship in that district would or would not be materially reduced?—It would not be reduced at all for some length of time; any clubs would only think of reducing when they were practically convinced of the advantages.

3391. If your answer is worth anything, the only object of a harbour of refuge to the shipping interest is the preservation of life, because, if the insurance would not be materially reduced, there would be no gain?—Yes, you would save the property.

3392. You would not save it to the shipowner, but to the insurance company?—Your question goes to this; that immediately a harbour of refuge is made, you go out into the town where you are; if it is in London, you go to Lloyds, and you expect, instead of getting your ship insured at  $4\frac{1}{2}$  or 5 or 6 per cent., to get it done at three per cent., and that would be quite a mistake.

3393. If it would not be reduced, the gain to the shipping interest would be very small?—No, I do not say that.

3394. Is it not the custom of the shipping interest to fully insure?—No, I do not know that it is the custom of the shipping interest to fully insure.

3395. In what proportion do they insure?—Probably to the extent of two-thirds. If you talk to me as a director of an insurance company, and ask me my opinion, I can give you my answer. I would not take any less premium until I was convinced that there had been an effect produced, that is, that that harbour did save vessels to such an extent as to warrant that reduction, and that could only be ascertained by lapse of time.

3396. You do not think, then, that the shipping interest on the east coast of England would contribute willingly in anyway to the formation of a harbour of refuge?—I think that they would not willingly do it, because there is a strong notion that the thing should be done in another way.

3397. Mr. Liddell.] Is not it the case that the mutual insurance system is very extensively pursued amongst the shipowners themselves in the north of England?—Yes.

3398. Lord Adolphus Vane Tempest.] Is not the insurance that takes place on the east coast chiefly conducted on the principle of mutual insurance amongst the shipowners themselves?—It is so principally; there is a large amount done in that way.

3399. Therefore a reduction in the amount of the loss of ships on the coast would directly benefit the shipowners, as they would be benefited by the reduction of the loss of their insurances?—No doubt; but the question put to me was, Would the premium of insurance be less?

3421. Chairman.] The ground upon which you have recommended so strongly a harbour of refuge on the north-east coast is the fact which is exhibited by the Wreck-charts, showing an unusual amount of wrecks upon that part of the coast, is it not?—Yes, it is.

3422. It is your hope that the formation of a harbour of refuge would materially diminish the loss of property and the loss of life?—Yes.

3423. And would therefore very much circumscribe the number of wrecks?—Yes, it would.

3424. In that case, the loss of property which now falls either upon the shipowner or the insurer, would be very greatly diminished?—It would be diminished, no doubt of it.

3425. There has been always a very strong opposition to the old system of passing tolls whereby vessels were obliged to pay for Ramsgate Harbour that went to the northabout, and for other harbours which they could never use?—Yes.

3426. And a very strong prejudice has been created in the minds of shipowners in consequence of their having to pay for harbours that they could never use?—Yes, a very strong feeling; because they paid for what they did not get.

3427. And formerly the same kind of objection was entertained with regard to paying for light dues, in respect of lighthouses which vessels did not use?—Yes, the same objection was entertained.

3428. That system of lighthouses has been very much improved of late?—Yes.

3429. So

3429. So that now vessels only pay for the lights which they really use?—Yes, or which are thought to be of service to them.

3430. And that they think no hardship?—I think not; there are people who think that the charges are too much, and that they ought to be modified.

3431. So far as the principle goes of charging vessels for the use of those lights which they pass, and which are of use to them, there is no objection to the principle of paying a small toll, sufficiently large, but not too much, for the maintenance of those lights?—No, I do not think there is.

3432. A harbour of refuge upon the north-east coast would very much diminish the loss of the shipping upon that part of the coast of England?—It would diminish the loss of the shipping on that part of the coast of England considerably, there is no doubt of it.

3433. Now, in the same manner as vessels now pay for lights which they may pass during the day, when they are of no use to them, but which they may also pass during the night, when they may be of use to them, would it be unreasonable for shipowners to object to the payment of a small toll, or a very small rate, for the purpose of constructing and maintaining a harbour which would be of use to them in the event of storms, with reference only to such vessels as pass the harbour, and for which it would be available?—I think it would, because you would work upon the principle of a passing toll.

3434. A lighthouse toll is a passing toll, is not it, in one sense of the word?—Yes, but a lighthouse toll is a toll already in existence, and you must do something to extinguish it; and to modify it is the easiest way to do that; but I draw a distinction between a new passing toll and one already existing, because, if you were to attempt to lay on a moderate toll for vessels passing any particular spot along that coast, you would have a very great opposition to any measure of that kind, inasmuch as the people would say (I know that is the feeling, because I know it with reference to what has transpired in the Board that I have the honour to preside over) that if a charge is to be made it should be made for the *bonâ fide* using of the port.

3435. You think that the present mode of charging light dues is an equitable mode?—I should say that it is; but it is one of those things that should cease to exist as soon as it can fairly be extinguished. These lighthouses have of late been a very objectionable thing to the shipping generally.

3436. Would you propose to extinguish light dues, by placing the charge upon the consolidated funds of the public revenues at large?—I should think that that would probably be a fairer way of doing it. In the end the shipowner would get less freight, and the nation would benefit by that; and I think that it would be perhaps quite as fair a way, or fairer.

3437. That would apply to only a particular part of the nation, would it?—To the nation generally.

3438. Do you see any other objection to a passing toll with regard to a harbour of refuge for a ship, for which the harbour is made, than to the use of a light for a ship which passes that light?—I do; the distinction is this: lights are already rates in existence.

3439. I ask you, whether you see any distinction in the nature of the charge?—I see a distinction in this way; you are going to create a new passing toll for vessels that make no use of the harbour at all; now, admitting that they make no use of the light, the light may be of material benefit to them, although they make no use of it; but the harbour can be of no use to them unless they go into it and make use of it.

3440. If the vessel passes the light during the day it is of no use to her; if she passes the light during the night it is of use to her; if a vessel passes the harbour of refuge in calm and fine weather, it is of no use to her; but if the same vessel is caught in the middle of a storm, necessarily, on its route to the port to which it is destined, it is of use to her; are they not in that respect the same, that they are for the purpose of vessels passing that part of the coast in the event of an emergency?—Yes; and if the vessels make use of them, it is right that they should pay; but, if they do not make use of them, it is my opinion that they ought not to pay for them; and I think that you would find a great objection to parties paying. Lights are useful, because they do direct the mariner where he is to go, without going into any particular port; but a harbour of refuge is a very different thing, because to pay for going by without making any use of it, is, I think, a material distinction.

3441. You do not of any use that a harbour of refuge would be to any other portion of the community, or any other interest, except the ships that passed it?—Yes; I think it would be of material use to the individuals having cargoes on board these ships.

3442. Taking the shipping and the cargo as one interest, the harbour of refuge would be of use only to the shipping that passed it?—It would be only of use to the shipping that passed it.

3443. The light is of use only to the shipping that passes it?—Yes.

3444. I believe that the practice in the Tyne and the Wear is very much what has been called mutual insurance; that is, the shipowners subscribe; practically, they insure each other, and in the event of a loss, they subscribe their money to make good the loss?—Yes, I know that it is so, because I have been in a club of that kind myself.

3445. Then, of course, the charge upon the shipowners in those ports for the risk which they run must be measured by the number of wrecks of their ships in the course of a year?—Yes, no doubt of it.

3446. And if, in the very next year, a smaller number of wrecks took place than in the present year, the shipowners of those ports would be benefited to that extent?—They would.



3447. With regard to general insurance, when you do it by premiums, those premiums are fixed in reference to a calculation of the average of losses, and you require a certain period in order to determine what that average is?—Yes.

3448. But if you found in the course of two years, in consequence of a harbour of refuge having been formed, that the average of loss was considerably less than it had been previously, the competition amongst the insurance offices would lower the premium?—Yes. I think it would; it is only reasonable to suppose so.

3449. So far as regards the shipowners and clubs who mutually insure each other, the very first vessel saved by the harbour of refuge would be to them a gain?—Yes.

3450. So far as regards those ships insured in offices, as soon as your general average had been reduced, competition would compel them to reduce their premiums?—No doubt.

3451. And therefore the lessened risk would be exhibited by the lessened payment by the shipowner one way or the other?—Yes, one way or the other.

3452. If you had a very considerable reduction of loss, in consequence of the construction of a harbour of refuge, that would very quickly show itself in the saving to the shipowners of those ports from the smaller losses at sea?—I do not think that it would very quickly do it. Whatever the saving was, they would feel the effect of it, and therefore as soon as ever there was a saving they would feel it. But I am not prepared to admit that it would very considerably do so till it was tested, in order to see the effect.

3453. It would be in proportion to the success of a harbour of refuge, and to the importance of a harbour of refuge upon that coast, that a reduction would be made in the insurance?—Yes.

3454. If there is to be this great saving of property, irrespective of life, do you think that it would be inequitable, looking to a public expenditure of money, that that particular interest, which indirectly saved some considerable portion of money by insurance, should be charged for the use of the harbour so constructed upon some equitable principle?—I do see objections to making a charge upon them without they make use of the harbour, because, although it is admitted to be a saving, a person may or may not take a harbour of refuge; he may say, I am not bound to do this, I think I am a cleverer sailor than other people, and I think I can get through without going into the harbour, but I am very unwilling to pay that tax whether I go into the harbour or not.

3455. You are a director of an insurance company on the Tyne?—Yes.

3456. When a person comes to you to be insured for the London voyage up and down from London you charge him a rate of insurance, not upon the calculation that he is lost, but upon the mere risk whether he be lost or not, computed upon the average of losses for the year?—Yes.

3457. Then a person who sails in fine weather and is not lost pays precisely the same as a shipowner whose vessel is lost, supposing the vessels to be of the same character and style?—I hardly see exactly what the question leads to.

3458. When you charge your premium of insurance, your premium of insurance has reference to the whole number of ships that pass between London and Newcastle, and you calculate your premium of insurance with reference to the proportion of those ships that are lost?—Yes, just so.

3459. Those shipowners whose vessels are not lost, pay just the same as those whose vessels are lost?—Yes, certainly.

3460. Therefore, the whole question of insurance is one of average, and you receive a premium that will cover you for that in the course of the year?—Yes.

3461. Therefore, is it unfair to ask the shipowners whose vessels do not use the harbour of refuge, but which may use the harbour of refuge in case of need, to contribute towards their security placed there for their use, or do you think that it should be confined solely to those who are unfortunate at the time, and are compelled to use it?—I think it is unfair; I think you are going to make the shipowner pay for that which he says may or not be of any use to him; but in the insurance, he says, "I do make use of this, inasmuch as I do not leave the harbour till the vessel is insured." Having effected that insurance, he pays no more than the man who loses his vessel, but he has made use of the security of the insurance company, and that is a certainty, it is a fact; but it is no certainty and no fact that he will make use of the harbour of refuge.

3462. If a person insures his vessel in the Tyne for a voyage to London and back and has no loss whatever, he has purchased a security against the risk, but he obtains nothing from that; you have no loss, and he has no gain by having done it if he has no loss?—Certainly not.

3463. If a person pays a small toll for the construction of a harbour which he passes, if he happens to require the use of that harbour it is of great advantage to him, but, if not, it is of no advantage to him?—Certainly.

3464. I think you stated that, in the construction of your own harbour, you thought it equitable to place a rate upon vessels leaving the Tyne for the purpose of paying for the cost of the harbour?—Yes.

3465. And you raise your funds exclusively from that source?—Yes.

3466. You proceed upon the principle, that those who use the harbour, and who have greater security hereafter in coming into the harbour and leaving it, will pay for the security so afforded to them?—Yes.

3467. Do you think that, if you proposed another plan, and said, that, as this is for the advantage of the port of Newcastle and Shields, it would be a fair thing to construct this harbour

harbour at the expense of the inhabitants from rates raised upon the general population, there would be an objection to that?—Yes.

3468. Do you think that the people would at once have said, "This is for the shipping interest, let them pay for it"?—Yes.

3469. If we are to construct a harbour of refuge at the public expense, do not you think that the public of the United Kingdom would say, If this harbour upon the east coast, which we admit to be very necessary and useful, is to be constructed for the benefit of the shipping, is not it fair that the shipping should pay for it; and that we, the farmers in Yorkshire, or in the north of Ireland, or anywhere else, should not be taxed?—I think it is very likely, and it is quite right; but it is equally right that these shipowners should not be taxed for what they receive no benefit from. You say, we lay on a tax in the Tyne. Undoubtedly we do, but the vessels have the benefit of coming in and going out of the harbour; but the case which you put is this, that the vessel shall pay, whether she makes use of it not.

3470. Would you confine your proposed toll, in the harbour of refuge, to the vessels entering the harbour of refuge, and using it alone?—Yes.

3471. I thought you said, that a rule of that kind would deter captains from using the harbour at all?—Yes.

3472. If we are to create harbours of refuge, upon public considerations, should not we do so upon a principle which should induce the largest use of those harbours?—Yes, certainly; it would be right that it should be done upon a principle that it would be the most advantage to people to make use of it; and I think that you would find that the shipowners generally will tell you, When we make use of the harbour we will pay for it.

3473. They would also tell you that they would have no confidence in the captain making for the harbour if he had to pay for it?—Yes, I think so; and that if the captain had held on his course he could have run on to his port, and so saved it.

3474. And in consequence of that a great number of wrecks would ensue?—Very likely.

3475. And therefore the advantage of a harbour of refuge would be very much diminished?—If they will run the risk they ought to pay for it.

16. The subject of "passing tolls" received much consideration from the Commissioners appointed to inquire into local charges upon shipping; and in their Report they laid down principles in respect to them, which, to your Committee, appear sound and just. They say, "It appears to us that the construction and maintenance of a Harbour of Refuge is a matter of interest, not only to those who seek and obtain refuge within the harbour, but also, although indirectly, to the whole maritime trade of the adjacent seas. Every harbour, however, which is worthy of the name of a harbour, must be regarded as affording, at certain times of the tide at least, an opportunity of refuge to vessels in its immediate vicinity, and many harbours do annually afford refuge to a considerable number of vessels, either windbound or in distress. But the connexion between harbours generally and the trade which passes by them, is of so indirect and secondary a character, that this connexion would afford no justification whatever for the general imposition of passing tolls. It is only when a harbour is a harbour of refuge in the strict sense of the term, that any justification, in our judgment, can be found for the imposition of a charge of this nature." \* \* \* \*

"It therefore appears to us,—1stly. That a passing toll levied for the construction, maintenance, or improvement of a harbour is not necessarily unjust in principle. 2dly. That a toll of this character is unjust in principle, unless it be levied for the construction, maintenance, or improvement of a Harbour of Refuge in the strict sense of the term. 3dly. That such a toll is unjust even when levied for the maintenance or improvement of a Harbour of Refuge, unless the amount of revenue derivable from those who use the harbour is insufficient to defray the expense thereof." These were observations made in reference to tidal trade harbours, and with reference to which the claims of the four harbours of Dover, Ramsgate, Whitby, and Bridlington to the special privilege of levying a passing toll were examined; and as in none of those cases the conditions above stated applied, those tolls were, as your Committee thinks, most justly, recommended to be abolished, inasmuch as the ships upon which they are charged, are not, and cannot be, in a majority of cases benefited by them. Your Committee entirely agrees in the general principles thus laid down by the Commissioners as quoted, and would apply them in their strictest sense, in reference to the harbours of refuge, which they have recommended. In the words of the Commissioners, these works would be "harbours of refuge in the strict sense of the term," constructed and maintained expressly for such purpose, available, not only at "certain times," but at all times of the



tide, and affording to all vessels navigating the waters in their vicinity, always a safe refuge in the case of need; a charge, such as has been suggested for such harbours, would be entirely in the spirit of the observations made by the Commissioners, and could not be exposed to any of the objections so justly raised against the passing tolls inflicted upon shipping for the four harbours of Ramsgate, Dover, Bridlington and Whitby.

17. In considering, however, the amount of the charge which may fairly be imposed upon shipping for the construction and maintenance of these harbours, your Committee is of opinion that there are plain grounds upon which shipowners should not be called upon to defray the whole. In some respects the utility of such harbours would be of a character for which the public revenues of the country might fairly be called upon to contribute; for example, all the works recommended would be less or more useful for vessels of the Royal Navy taking shelter; and as coaling stations for ships of war, there being at present no harbour between Flamborough Head and the Fern Islands where such a vessel can coal; they would also be useful as national defences, the fixed breakwaters affording great facilities for the erection of powerful batteries. Again, the effort to save life may fairly be classed as a national object. For these reasons your Committee is of opinion that any such charge upon shipping should be placed at an extremely moderate amount, even though the revenue derived from it did not reach the sum required for the purposes indicated. With regard to what the charge should be, Captain Sullivan has suggested a rate of *one penny per ton* upon all vessels which may be considered to be benefited by the harbours to be made.

18. The conclusion at which your Committee has arrived, therefore, is, that such a charge, if imposed, should not exceed in any case 1*d.* per ton upon all ships entering into, or clearing from, ports in the United Kingdom, which ships, in the ordinary course of their voyages, would pass the harbours to be constructed; and that whatever rate is fixed upon at first, it shall be reduced from time to time, so as not to exceed a total sum, which shall be equivalent to three-fourths of the interest, which should be computed at the rate of 3 per cent., and of the cost of maintenance. Your Committee feels more confidence in recommending this principle of a small charge for adoption, because it is one so manifestly fair to the rest of the community, that no such objection can be taken to it as would be likely to interfere with the speedy construction of these important works; whereas it would have much less confidence in that object being attained, if the charge were proposed to be entirely defrayed from the Consolidated Fund; against which objections might, with every appearance of justice, be raised by those not interested in shipping or seaport communities. Your Committee is aware that it would require great care to carry out the principle in all its details, but it is of opinion that this duty may fairly be left to Her Majesty's Government.

19. With regard to the best mode of construction for harbours in deep waters, your Committee has taken some evidence. There are three modes at present in use: the first may be termed Mr. Rendel's plan, which has been so successfully adopted at Holyhead and at Portland; the second, which is a modification of the first, is one recommended by Mr. Abernethy, and upon which he has constructed a harbour at Blyth; and the third is the plan of building walls of masonry by means of the diving-bell, as in use at Dover. The first and third of these plans will be found to be described in great detail in the evidence given by Mr. Coode, the engineer in charge of the works at Portland; the second plan will be found to be described in the evidence of Mr. Abernethy. A fourth plan of constructing breakwaters was submitted to your Committee by Mr. Hayes, which will be found to be described in his evidence. No breakwater has been constructed upon this plan in this country, but it is stated that it is being adopted at Melbourne, in Australia. With regard to the constructions proposed in this Report, your Committee is disposed to view favourably the plan invented by Mr. Rendel, as used at Holyhead, or as modified by Mr. Abernethy, first, because it is much the cheapest; second, because works can be accomplished in that way much more speedily than in any other; and thirdly, because in all the cases referred to, there is abundance of material upon the spot to make that plan practicable.

20. Upon the subject of employing convict labour in the construction of harbours of refuge, your Committee would refer to the evidence given by Mr. Coode.

21. During the course of the inquiry which your Committee has conducted much evidence has been received upon the improvements of which the existing tidal harbours are susceptible, as bearing upon the general question of refuge in the case of need for passing vessels. Captain Vetch has expressed strongly his opinion of the great advantages which would be derived from such improvements to the general shipping of the country. But your Committee, however sensible it may be of the advantages which might be obtained from such improvements, is of opinion that this subject should not be mixed up with that of harbours of refuge, properly speaking, but should be kept entirely distinct, and should be left to the local managements of each individual port. Many of these ports are in possession of considerable incomes from the dues which they charge upon the shipping resorting to them, and have shown a desire to use every means in their power to render the accommodation of their harbours more complete, and the approach to them more secure. At Newcastle-upon-Tyne large works have been undertaken, and are in progress. At Sunderland considerable funds are at the disposal of the River Wear Commissioners, and, if applied to the extension of the piers would be productive of great benefit. It has also been shown that comparatively small sums of money laid out upon the port of Lowestoft, and other parts of that coast, would add greatly to the convenience of their trade as well to the security of the passing ships. Improvements have been suggested on the south coast, especially near Newhaven; on the coast of Wales, also, and especially at Cardigan, Fishguard, and Newport, it has been represented that essential improvements might be made. But, important as all these may be, especially in reference to the local trades of each, your Committee is not prepared to recommend the outlay of public money upon them, so as to interfere with the great and important national works which have already been adverted to. There is, however, one suggestion which your Committee feels it its duty to make upon this subject, with the view of facilitating these local improvements. Many of these ports are, as has been remarked, in possession of considerable incomes from their own private sources, and are disposed to apply them to these purposes; but these resources would be more available for the required works if they were able to borrow larger sums, upon the principle of mortgaging their present surplus income or future dues, to repay the same within a given number of years, upon the same plan as the drainage loans, or the loans made by the Public Works Loan Commissioners, for various purposes. In many cases applications have been made to those Commissioners, but it is believed that the funds placed annually at their disposal by Parliament are too limited in amount, and have too many claims of other kinds upon them, to enable them to entertain some of these applications. Your Committee is therefore of opinion, that it would be in every way consistent with sound policy to encourage local efforts for the improvement of such harbours, by voting a moderate sum annually, to be specially appropriated to such harbours, upon the same principle and under the same regulations as were applied to the large amount advanced for the purposes of drainage. And looking to the great importance of the object to be attained, your Committee would recommend that such loans should be made at a rate of interest not exceeding 3 per cent., and should be made repayable by means of a sinking fund extended over a period of 50 years.

22. In conclusion, your Committee cannot too earnestly press upon The House the strong conviction which it has received from the investigation it has conducted, as to the necessity, on national grounds, of these works being undertaken at as early a period as possible, and placed under some system which will secure their steady and speedy progress. Allusion has already been made to the extraordinary increase which has taken place in the amount of shipping entered inward and outward in the foreign trade during the last 15 years; the increase having been from 9,824,562 tons in 1843, to 23,178,792 tons in 1857; but it must be remarked, that in addition to this great increase in the foreign trade, the coasting trade has also increased during the same period from an aggregate

of 22,133,000 tons entered inward and outward in 1843, to an aggregate of 27,065,000 tons in 1857. This increase has taken place steadily from year to year, notwithstanding the occasional checks which have been received during that period to the commercial prosperity of the country, and there is no reason that your Committee can discover why it should not proceed at the same rate. But it must be obvious, that it will be just in proportion as the waters upon our coasts and the approaches to our harbours become crowded, that the risk will be increased, especially when ships become unmanageable in severe storms. If then we are to look forward for ten years, the period which it is assumed will be required to complete the works recommended, it is probable that the continued increase of our trade over that space of time will be such as will show that improvements of the character pointed out in this Report have become absolutely indispensable to the further development of our shipping which will have taken place. Your Committee feels that it may be laid down as an indisputable axiom, sustained by experience, especially of late years, that while the extent of our coasts and the natural facilities they afford for navigation are limited, the trade of the country, and consequently its shipping, are capable of and destined to an indefinite expansion ; and that the only way therefore by which the former can be rendered commensurate for the requirements of the latter, is by supplementing the natural facilities which we possess, by the construction of great national works upon our coasts, such as your Committee has ventured to recommend. The sum required for them, though considerable of itself, is, your Committee would submit, trifling when compared with the great objects which are to be attained by it : and if the recommendations of your Committee are adopted, even that amount may be prevented, at least in part, from being any permanent charge upon the finances of the State ; but even were it otherwise, your Committee will venture to express an opinion, that considering what constitutes the chief source of the commercial greatness and the political security of this country, and considering the enormous loss both of life and property to which the nation is at present exposed from the dangerous and unprotected state of our coasts, and the consequent defective character of our navigation, there is no object for which public money could be more usefully or more profitably employed, having regard to the present and future welfare of the nation.

17 June 1858.

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# PROCEEDINGS OF THE COMMITTEE.

*Javis, 18<sup>o</sup> die Februarii, 1858.*

## MEMBERS PRESENT:

Mr. Wilson.  
Lord Naas.  
Mr. Kendall.  
Mr. Hassard.  
Mr. Augustus Smith.  
Mr. Duff.

Mr. Clay.  
Admiral Duncome.  
Sir James Elphinstone.  
Mr. Macartney.  
Lord Adolphus Vane Tempest.

Mr. WILSON was called to the Chair.

Committee deliberated.

[Adjourned till Thursday, 25th February, at Twelve o'clock.

*Javis, 25<sup>o</sup> die Februarii, 1858.*

## MEMBERS PRESENT:

Mr. WILSON, in the Chair.

Admiral Duncombe.  
Sir James Elphinstone.  
Mr. Ewart.  
Mr. Fergus.  
Mr. Duff.  
Mr. Hassard.  
Mr. Philips.  
Mr. Macartney.

Mr. Dodson.  
Sir Frederic Smith.  
Mr. Liddell.  
Mr. Kendall.  
Mr. Augustus Smith.  
Mr. Traill.  
Sir Robert Ferguson.  
Mr. Clay.

The Committee examined Mr. *David Stephenson*, C. E.

In the absence of Mr. Wilson, Mr. Liddell was called to the Chair.

The Committee further examined Mr. *David Stevenson*.

The Committee examined Captain *James Henderson*, Colonel *R. C. Moody*, and Lieutenant *C. T. Cerjat*.

Captain *Henderson* further examined.

Room cleared. Committee deliberated.

[Adjourned till Thursday, March 11, at Twelve o'clock.

## PROCEEDINGS OF THE

*Jovis, 11° die Martii, 1858.*

## MEMBERS PRESENT:

Mr. WILSON, in the Chair.

Mr. Liddell.  
Mr. Macartney.  
Mr. Gurney.  
Mr. Traill.  
Admiral Duncombe.  
Mr. Duff.  
Mr. Baring.  
Mr. Hassard.

Mr. Dodson.  
Mr. Kendall.  
Sir Frederic Smith.  
Lord Adolphus Vane Tempest.  
Sir James Elphinstone.  
Mr. Augustus Smith.  
Mr. Clay.

Room cleared. Committee deliberated.

The Committee examined Rear-Admiral Sir *James Clark Ross*, Mr. *John Coode*, Mr. *Mark Clarke*, and Mr. *H. G. Coston*.

[Adjourned till Thursday next, at Twelve o'clock.]

*Jovis, 18° die Martii, 1858.*

## MEMBERS PRESENT:

Mr. WILSON, in the Chair.

Admiral Duncombe.  
Lord John Hay.  
Mr. Hassard.  
Mr. Ewart.  
Mr. Augustus Smith.  
Mr. Philips.  
Sir Robert Ferguson.  
Mr. Traill.

Mr. Kendall.  
Mr. Gurney.  
Mr. Dodson.  
Mr. Macartney.  
Sir James Elphinstone.  
Sir Frederic Smith.  
Mr. Baring.  
Lord Adolphus Vane Tempest.

Room cleared. Committee deliberated.

The Committee examined Captain *W. L. Sheringham*, Mr. *Thomas Roundell Forward*, Mr. *John Dyer Bryant*, and Mr. *Joseph Samson*.

[Adjourned till Monday, at Twelve o'clock.]

*Lunæ, 22° die Martii, 1858.*

## MEMBERS PRESENT:

Mr. WILSON, in the Chair.

Mr. Baring.  
Mr. Traill.  
Mr. Macartney.  
Admiral Duncombe.  
Mr. Ewart.  
Mr. Hassard.  
Mr. Philips.  
Mr. Dodson.  
Mr. Gurney.

Sir Frederick Smith.  
Lord John Hay.  
Mr. Kendall.  
Mr. Augustus Smith.  
Mr. Clay.  
Sir James Elphinstone.  
Lord Adolphus Vane Tempest.  
Mr. Fergus.

The Committee examined Captain *Christopher Claxton*, Mr. *Thomas Barnard Chanter*, Mr. *Robert Winder*, Mr. *James Abernethy*, Rear-admiral Sir *Henry Shiffner*, and Mr. *Thomas Lowery*.

Room cleared. Committee deliberated.

[Adjourned till Thursday, at Twelve o'clock.]

*Jovis, 25<sup>o</sup> die Martii, 1858.*

## MEMBERS PRESENT:

Mr. WILSON, in the Chair.

Admiral Duncombe.  
Sir Frederic Smith.  
Mr. Hassard.  
Mr. Ewart.  
Mr. Philips.  
Mr. Macartney.  
Sir James Elphinstone.

Mr. Gurney.  
Lord John Hay.  
Mr. Kendall.  
Mr. Clay.  
Mr. Augustus Smith.  
Mr. Dodson.

The Committee examined Sir *John Burgoyne*, Rear-admiral *George Evans*, Sir *James Dombain*, Captain *William Cumming*, Captain *James M'Kellar*, Mr. *Barry Gibbons*, and Mr. *William Dargan*.

[Adjourned till Monday, April 12th, at Twelve o'clock.]

*Lunæ, 12<sup>o</sup> die Aprilis, 1858.*

## MEMBERS PRESENT:

Mr. Clay.  
Mr. Traill.  
Mr. Dodson.  
Mr. Baring.  
Admiral Duncombe.  
Mr. Gurney.  
Mr. Ewart.

Mr. Augustus Smith.  
Mr. Liddell.  
Lord John Hay.  
Sir James Elphinstone.  
Mr. Philips.  
Sir Frederic Smith.  
Mr. Hassard.

In the absence of Mr. Wilson, Mr. LIDDELL was called to the Chair.

The Committee examined Mr. *James Walker*, Mr. *Edward Best*, Mr. *Joseph Thompson*, Mr. *William Hamilton*, and Mr. *James Abernethy*.

[Adjourned to Thursday, at Twelve o'clock.]

*Jovis, 15<sup>o</sup> die Aprilis, 1858.*

## MEMBERS PRESENT:

Mr. WILSON, in the Chair.

Mr. Liddell.  
Mr. Macartney.  
Mr. Gurney.  
Mr. Baring.  
Admiral Duncombe.  
Mr. Hassard.  
Mr. Ewart.  
Mr. Philips.

Mr. Kendall.  
Lord John Hay.  
Sir Frederic Smith.  
Mr. Augustus Smith.  
Lord Adolphus Vane Tempest.  
Sir James Elphinstone.  
Mr. Traill.

The Committee examined Sir *Samuel Morton Peto*, Mr. *David James*, Mr. *George Bowin*, Mr. *John Harries*, and Captain *Christopher Claxton*.

[Adjourned till Monday, at One o'clock.]

## PROCEEDINGS OF THE

*Lunæ, 19<sup>o</sup> die Aprilis, 1858.*

## MEMBERS PRESENT :

Mr. WILSON, in the Chair.

Mr. Kendall.  
Mr. Dodson.  
Mr. Augustus Smith.  
Mr. Liddell.  
Mr. Hassard.  
Admiral Duncombe.  
Mr. Philips.  
Sir Robert Ferguson.  
Lord Adolphus Vane Tempest.

Mr. Gurney.  
Mr. Baring.  
Mr. Macartney.  
Sir James Elphinstone.  
Mr. Ewart.  
Lord John Hay.  
Sir Frederic Smith.  
Mr. Clay.

The Committee examined Captain *John Drew*, Mr. *Robert Getting*, Mr. *James Walker*, Captain *James Vetch*, Captain *John Williams*, and Mr. *William Bennett Hayes*.

[Adjourned till Wednesday, June 2.]

*Mercurii, 2<sup>o</sup> die Junii, 1858.*

## MEMBERS PRESENT :

Mr. WILSON, in the Chair.

Mr. Liddell.  
Mr. Traill.  
Mr. Philips.  
Mr. Dodson.  
Admiral Duncombe.  
Mr. Baring.  
Mr. Kendall.

Mr. Macartney.  
Mr. Gurney.  
Lord John Hay.  
Mr. Joseph Ewart.  
Sir Robert Ferguson.  
Sir James Elphinstone.

The Committee deliberated as to their course of future proceeding.

[Adjourned till the 9th inst., at Twelve o'clock.]

*Mercurii, 9<sup>o</sup> die Junii, 1858.*

## MEMBERS PRESENT :

Mr. WILSON, in the Chair.

Mr. Ewart.  
Sir James Elphinstone.  
Admiral Duncombe.  
Mr. Liddell.  
Mr. Macartney.  
Lord A. Vane Tempest.  
Mr. Kendall.  
Mr. Gurney.  
Mr. Traill.

Mr. Dodson.  
Mr. Baring.  
Lord J. Hay.  
Sir Frederic Smith.  
Mr. Hassard.  
Mr. Philips.  
Mr. Lowe.  
Sir R. Ferguson.  
Mr. Clay.

Draft Report proposed by the Chairman ; read 1<sup>o</sup>.

" Your Committee, which was originally appointed in the Session of 1857, and which reported the evidence taken before it in that year, has continued its labours since its re-appointment at the commencement of the present Session. During the two Sessions, the Committee has examined Capt. Washington, Hydrographer of the Navy ; Capt. Vetch, in charge of the Harbour Department of the Admiralty ; Capt. Sullivan, the naval member of the Board of Trade ; Mr. Coode, Engineer-in-chief for the Harbour of Refuge and Break-water at Portland ; Mr. E. K. Calver, R. N., the Admiralty Surveyor for the east coast of England ; and other officers of the Royal Navy who have been engaged in surveys of different

different parts of the coast; besides these, civil engineers, master mariners, and others who, from their intimate connexion and knowledge of the subject, could afford information upon the subject referred to this Committee, have also been examined. The reference to your Committee was 'to inquire into the policy of making further grants of public money for the improvement and extension of Harbours of Refuge,' upon which it has agreed to the following Report:—

"Your Committee has not thought it necessary to take any evidence as to the great and increasing extent of the shipping interests which are involved in the inquiry entrusted to it, inasmuch as there is an abundance of documents already before the House which sufficiently illustrate those points, but to which it may not be out of place briefly to refer in this place, as bearing upon the observations which your Committee has thought it its duty to make. In the 'Statistical Abstract' laid before Parliament in the present Session, at pages 30 and 31 accounts are given of the progress of the shipping of the United Kingdom for a series of years. From these accounts it appears that in 1843, only 15 years ago, the entire amount of British shipping which entered into and cleared from the ports of the United Kingdom was 7,181,179 tons, and of Foreign, 2,643,383 tons, making together an aggregate tonnage of 9,824,562 tons; but that so rapidly has the shipping trade of the country increased in the interval, that in 1857 the quantity of British tonnage entered into and cleared from the ports of the United Kingdom had increased to 13,694,107 tons, and the Foreign shipping to 9,484,685 tons, making an aggregate quantity of no less than 23,178,782 tons, being an increase of 13,394,230 tons, or of *one hundred and thirty-six per cent.* in 14 years. Again, the same Returns show, that while in the year 1843 the tonnage of sailing and steam ships built and registered in the United Kingdom amounted only to 83,097 tons, in 1857 it had increased to 250,472 tons; and lastly, it appears that while the entire number of men (exclusive of masters) employed in the registered vessels of the United Kingdom, in the Home and Foreign trade, not including river steamers, in 1849, was 152,611, that number had increased in 1857 to 176,387 persons. Your Committee would remark, that the progress in our shipping thus referred to, however great it may appear, has continued steadily from year to year, which would seem to indicate that it is destined to go on at about the same rate. The importance which your Committee attaches to the remarkable facts which these returns disclose, in connexion with the subject of its inquiry, is derived from a consideration, first, of the great extent of the property and life thus shown to be at stake, and next, from its rapidly increasing importance; for it must be obvious, on the one hand, that it is in proportion to the amount of the stake that an effort should be made on public grounds to afford the greatest possible security to our shipping, while it must be equally plain, on the other hand, that the more crowded the waters around our shores become by increased traffic, the greater must be the risk of accidents from collision and otherwise, and the more urgent must be the necessity for greater accommodation, and provision for safety. The practical conclusion which your Committee derives from these considerations is, that however much it may appear that Harbours of Refuge are now required for the security of our shipping, it is a want which must become more and more urgent from year to year. And moreover, that inasmuch as the construction of such harbours must necessarily occupy many years, it is of the utmost importance that no time shall be lost, first, in determining upon some national policy in relation to them, and next, in giving practical effect thereto.

"In order that The House may the better see the extent to which losses and damage are sustained by casualties at sea, the Committee has caused to be inserted in the Appendix to the Report of 1857, a wreck chart for the five years 1852 to 1856, both inclusive, compiled from the Admiralty and Board of Trade returns, and submitted to the Committee by the Hydrographer of the Admiralty. By referring to that map, and to the evidence of Captain Washington, it will be seen that the number of casualties in those years amounted to 5,128, being an average of 1,025 a year. These casualties consisted of—

1. Total losses by stranding or otherwise	-	-	-	1,940
2. Total losses by collisions	-	-	-	244
3. Serious damage, having to discharge	-	-	-	2,401
4. Collisions with serious damage	-	-	-	543
TOTAL - - - -				5,128

"The total losses from all causes, therefore, amounted to 2,184 vessels, or at the average of nearly 437 in each year. The total loss of life connected with these casualties, was 4,148 persons, or, upon an average of five years, nearly 830 in each year. In 1854, the loss of life amounted to no fewer than 1,549 persons. The value of the property lost by total wrecks, is estimated by Captain Washington at 1,000,000 *l.* a year at least, and by other losses and casualties at 500,000 *l.*, making altogether 1,500,000 *l.* as the annual loss to the country from these casualties on our coasts. Captain Sullivan considers this a very low estimate, and would place it higher. Your Committee is disposed to adopt it, as at least not being an exaggeration of the truth. It may, therefore, be fairly stated that under present circumstances, the losses upon the coasts of the United Kingdom amount annually to 830 human lives, and property to the value of 1,500,000 *l.*; and this is independent of the numerous and serious losses both of life and property connected with the fisheries on the coasts.

"In conducting the inquiry committed to it, your Committee has endeavoured to keep strictly in view the distinction between harbours constructed and required for the trade of particular ports, and of harbours of refuge applicable to the entire trade of the country, foreign as well



as coasting, frequenting or passing particular parts of the coast. The former it has not considered strictly within the scope of its inquiry, although some evidence has been taken upon that class of harbours, when it was considered to bear, in some degree, less or more upon the question of refuge; your Committee will make some observations upon such harbours in a subsequent part of this Report. But it has been mainly to the latter, viz., harbours of refuge upon such parts of the coast, as being much frequented, are without any place of safety into which vessels can run if overtaken by storms, that its attention has been confined. In this, the chief part of its duties, your Committee has found that its labours have been much abridged by the happy circumstance, that already large portions of our coasts are well furnished with natural harbours of refuge; so that it has found it compatible with a discharge of its duties to confine its attention chiefly to a few important points. Along the whole of the west and north coasts of Scotland it has been shown that numerous and excellent natural harbours exist. For a portion of the east coast of Scotland, the Frith of Forth forms an excellent place of refuge. On the east coast of England, the Humber, the Wash, the Yarmouth Roads and the Thames afford, for their different localities, places of security. Between the Thames and the Land's End, extensive harbours are being constructed at Dover and Portland; excellent harbours already exist at Plymouth and Falmouth; and good shelter is found on other parts of that coast. Between the Land's End and the Solway some shelter is afforded by the Bristol Channel, the natural harbours on the Welsh coast, and a large and important harbour is being constructed at Holyhead, which has already, even in its incomplete and unfinished state, proved of great importance and advantage to the extensive trade of that part of the kingdom. The coast of Ireland is well furnished with natural harbours, though works to a comparatively limited extent are required in order to render some of them in the most important localities more available for national purposes.

"The portions of the coast most exposed to danger, and where works of a national character are most required, are, first, that part of the east coast of Scotland extending from the Pentland Frith, on the north, to the Frith of Forth, on the south; second, that part of the east coast of England, extending from the Fern Islands, on the north, to Flamborough Head, on the south; third, that portion of the west coast of England, extending from the Land's End to the south coast of Wales, and including the Bristol Channel; fourth, the points on the coast of Ireland to which reference has already been made, and one point in the Isle of Man. Independent of the two great works now in progress at Holyhead and Portland, these constitute the works which your Committee is of opinion are most urgently required, and which should have priority to all others if any other of the improvements, to which allusion will be made hereafter, should be deemed to be of a character which should entitle them to be regarded as national rather than local works. Your Committee will now proceed to remark upon these different works in the order in which it has taken evidence upon them.

#### FIRST.—THE EAST COAST OF SCOTLAND.

"Between the Pentland Firth, on the north-east extremity of the coast of Scotland, and the Frith of Forth, on the south, there is no harbour for the shelter of vessels caught in storms, except Cromarty Frith, and that is so deeply embedded in the bay as to be practically unavailable for the great bulk of the shipping passing that line of coast, which is generally of a very bold and dangerous character. The traffic on this coast is very considerable. Independent of the coasting trade, and that with the Orkney and Shetland Islands, there is a large trade with Archangel and other ports in the North of Europe, and there is also a large trade between the ports on the west coasts of England and Scotland and Ireland, and the ports in the Baltic and the North of Europe, passing to and fro through the Pentland Firth. Independent of all this passing trade, a very large trade has of late years risen up, and is still increasing, between the continental ports and the north-east coast of Scotland, in the export of fish. It appears in evidence that shipping resorts to the port of Wick alone to the extent of 60,000 tons a year for the export of fish to the continent. The want of a good harbour of refuge on this part of the coast has been very strongly urged upon your Committee by all the witnesses who have given evidence upon the subject, but principally by the experienced officers attached to the Admiralty. It has been urged mainly in respect to the trade of the coast, including the fisheries, but also, in some degree for the use of the ships of Her Majesty's Navy. Three places on this part of the coast have been pointed out as the best suited for the erection of such a harbour, viz., Wick, Peterhead and Fraserburgh. The majority of evidence is, however, in favour of Wick. Captain Washington and Captain Vetch, of the Admiralty, and Captain Sullivan, of the Board of Trade, whose attention had been specially and officially called to the question, and who had carefully examined it upon the spot, are very decided in favour of Wick. On the other hand, Colonel Moody, of the Royal Engineers, has spoken in favour of Peterhead, but chiefly in relation to its advantages in a strategical point of view for the erection of defences to command the coast. Mr. Stevenson, the well-known engineer, also, while he admitted the more extensive trade of Wick, and the necessity for a harbour there, gave the preference to Peterhead; while Mr. Abernethy was of opinion that Fraserburgh presented advantages superior to any other place; but while some differences of opinion existed as to its being the best spot for a Harbour of Refuge in respect to some of its objects, all the witnesses concurred in opinion that for the purposes of the great fishing trade Wick is the most important. It is stated that upwards of 1,700 boats fish off the coast of Caithness from all parts of Scotland, and even from England and Ireland; of these at least 1,000 boats, manned by 5,000 men, belong

belong to Wick, while only 400 boats belong to Peterhead, and a still smaller number to Fraserburgh. With regard to the formation of a Harbour of Refuge at Wick, your Committee thinks it necessary to state that the Commissioners for the present harbour in connexion with the Fishery Society, have it in contemplation to enlarge the present harbour, and are prepared to expend a sum of 45,000*l.* thereon; the inadequacy, however, of the proposed plan and improvement for the objects required has been strongly pointed out by the officers of the Admiralty, and especially in the evidence of Captain Vetch, who produced a plan to the Committee by which the objections would be obviated, sufficient accommodation secured for all the objects of the harbour, whether for the purposes of fishing, of trade, or of a naval station, at a cost estimated by Mr. Coode, the officer in charge of the works at Portland, not to exceed 186,000*l.* It is understood that the Fishery Society is ready to apply the sum at their command towards this large work, in place of expending it upon the smaller work contemplated. The harbour proposed by Mr. Stevenson, at Peterhead, would inclose a space of 200 acres at low water, and of 100 acres within the three-fathom line, and is estimated by him to cost 335,000*l.* The plan proposed by Mr. Abernethy for the improvement of Fraserburgh he estimates would cost 80,000*l.*, and would furnish a sheltered area of 11 acres for vessels drawing 20 feet and upwards, and about 30 acres for vessels of a less class.

“ SECOND.—THE NORTH-EAST COAST OF ENGLAND.

“ It appears in the evidence taken by your Committee, that between St. Abbs' Head and Flamborough Head, a distance of about 150 miles, every harbour along the coast, without any exception, has a bar at its entrance, less or more dangerous; and that none of them can be entered at low water. This coast includes the important ports of the Tyne, the Wear and the Tees, besides those of Berwick-upon-Tweed, Blythe, Hartlepool, Seaham, Whitby, and Scarborough. Having reference to the great and rapidly increasing traffic to and from the ports included in this line of coast, and to the number of casualties upon it, your Committee cannot hesitate to express its opinion that it urgently demands the earliest consideration, with a view to lessen the enormous loss of life and property which annually occurs upon it. Captain Sullivan has shown that the entire tonnage of British sailing vessels annually clearing coastways from ports in England was 8,162,000 tons, and coastways and foreign, 15,796,000 tons; and that of these quantities, the tonnage from the five ports of Newcastle, Hartlepool, Sunderland, Shields, and Stockton, clearing coastways, was 3,733,000 tons, and coastways and foreign together, 5,160,000 tons; so that the trade of these five ports represents fully 45 per cent. of the whole coasting trade of England, and fully 32 per cent. of the entire trade, coasting and foreign together. With regard to casualties and losses of life and property, Captain Washington states, that he has computed that one-half of the whole occur on the east coast of Great Britain, and that fully one-half of that number occurs between the Frith of Forth and the Humber; this would represent at least 25 per cent. of all the losses on the coasts of the United Kingdom as occurring within that limit. Great and praiseworthy efforts have been made to improve the approaches to some of the existing harbours on that coast, and especially at the mouth of the Tyne, but these are works more applicable to the special purposes of the ports in connexion with them, than to a general harbour of refuge, so much required. With a view to such a work, Captain Washington says, ‘Tees Bay is the focus of wrecks on the east coast of England, and this bay includes Hartlepool, Stockton, and Redcar;’ and he has no doubt that some part of Tees Bay is the best spot for such a national work. But while his impression is in favour of Hartlepool, which has been reported upon to the Admiralty by the late Mr. Rendel, yet it would require further consideration whether Hartlepool or Redcar, or which side of the Bay, should be adopted. Captain Vetch and Mr. Calver both concur in his recommendation of Tees Bay as the best locality, and of Hartlepool as the most eligible spot. It appears that “at the instance of the Port and Pier Commissioners, the late Mr. Rendel was ordered to examine carefully into the subject of a harbour of refuge at this point, and that he reported strongly in favour of a harbour, by running out piers on the north and south side of the bay; the plan inclosed an area of 470 acres, having a depth of 12 feet and upwards, and of 325 acres having a depth of 18 feet and upwards at low-water spring tides; of which the estimated total cost was 800,000*l.*, and the period required for completion about six years.’ Captain Vetch has, however, suggested that a breakwater, open at both ends, and placed in front of the entrance to the harbour, in somewhat the same form as the breakwater in Plymouth Harbour, would in many respects be preferable. The only other point of this coast which has been much urged upon your Committee as suitable for a public harbour of refuge, as distinguished from the local requirements of individual ports, is Filey Bay, about half-way between Flamborough Head and Scarborough; and the arguments and facts put forward by Mr. Coode as an engineer, and by mariners who have long navigated that coast, are, in the opinion of this Committee, well worthy of being carefully considered before any final decision is arrived at upon the subject. It is contended by these witnesses that most of the vessels that are lost upon that part of the coast are laden vessels on their way southward; that they seldom leave their ports except with a fair wind, which carries them up as far as Flamborough Head, where, when overtaken with an adverse wind, they congregate in great numbers, sometimes as many as 300 or 400 at a time, and in the last extremity are driven back to seek shelter in one of the ports to the northward, and that it is in the attempt to reach those ports that they founder at sea, or are lost in the attempt to cross the bars which encounter them at the entrance to all the harbours northward to the Forth. It is

even stated that vessels frequently put back from Flamborough Head as far as the Frith of Forth; and it is contended that a harbour at Filey would be the best means of affording shelter to such vessels, and of avoiding the serious losses now sustained. It is, however, necessary to observe, that there is some difference in the evidence as to the proportion of losses of laden ships, to which this argument applies, and of light ships. Mr. Coode states, that a breakwater, including the rocks of Filey Brigg, of 3,200 yards, would give an area of 200 acres, sheltered from every wind, with water deep enough for a line-of-battle ship; of 348 acres of a depth of three fathoms and upwards; of 403 acres of a depth sufficient for the largest colliers; and of 427 acres of one fathom and upwards, which would be suited for fishing boats; all equally sheltered from every wind. He estimates the cost at 860,000 *l*. This plan appears to have received less attention than the one for erecting a harbour of refuge in Tees Bay, but, for the reasons named, your Committee is of opinion that it merits further investigation; but whatever point may be decided upon competent authority as the best, your Committee desires to express its strong opinion, that a harbour of refuge on this part of the coast, of dimensions suitable to its large and rapidly increasing traffic, is urgently required.

**“ THIRD.—THE COAST FROM LAND’S END TO HARTLAND POINT, AND THE BRISTOL CHANNEL.**

“ In considering this part of the coast, your Committee draws a distinction between the part extending from the Land’s End to Hartland Point, and that further up, embracing the whole of the Bristol Channel on both sides. The evidence goes to show that the part of the coast up to Hartland Point is frequented chiefly by small coasting vessels; it is shown that out of 3,221 casualties, 2,648 happened to vessels under 200 tons, 367 to vessels between 200 and 350 tons, 93 to vessels from 350 to 500 tons, and 113 to vessels above 500 tons. On the other hand, the Bristol Channel is frequented by foreign-going ships, rapidly increasing in number, and of large tonnage. With respect to the first of these two divisions, it appears that the most dangerous part of the coast is between Cape Cornwall and Trevoze Head. The two points most strongly recommended to your Committee for the construction of a harbour for the use of this district are St. Ives and Padstow. The former is supported by Captain Washington, Captain Vetch, Captain Sullivan, and Mr. Coode. Captain Vetch has prepared a plan and estimate for the Admiralty, by which it appears that at the cost of 174,000 *l*. a good harbour of refuge might be constructed on that spot, affording 80 acres of water 12 feet in depth, and 56 acres of a depth of 18 feet and more. On the other hand, it is contended that by cutting down Slipper Point, the harbour of Padstow may be made to answer all the purposes required on that part of the coast at a cost of little more than 30,000 *l*. Your Committee recommends that this proposal shall receive a strict investigation before a final decision is arrived at. The points in the Bristol Channel to which the attention of the Committee has been chiefly drawn, as offering the best security for the shipping frequenting it, are the Mumbles Head, Lundy Island and Clovelly. Mr. Abernethy, who thinks that the Mumbles is the most important point for a harbour of refuge for the Welsh coast and the Bristol Channel, produced a plan, by which he proposed to construct two breakwaters, together of the length of 1,760 yards, at a cost of 370,000 *l*., and which would afford a harbour of an area of 200 acres, with a depth of four fathoms at low-water spring tides, sheltered from all winds. On the other hand, it has been strongly contended, by other witnesses, that Lundy Island is the best point. Much difference of opinion has been expressed before your Committee as to the respective merits of these two places, and they will require a much more minute investigation than could possibly be given by your Committee before any point is actually decided upon. Your Committee would only further state upon this part of the subject, that, judging by the state of things which has arisen in the crowded coal ports of the North of England, any place which is finally determined upon for affording refuge to ships frequenting the Bristol Channel, should have special reference to the rapid development of the coal and iron fields in South Wales, and to the increasing sea traffic which is arising therefrom.

**“ FOURTH.—THE COASTS OF IRELAND AND THE ISLE OF MAN.**

“ The chief points on the coast of Ireland to which the attention of your Committee has been directed, with a view to afford shelter for vessels in distress, are Carlingford Bay, Portrush, Waterford and Wexford, though the latter partakes more exclusively of the character of a private trade harbour. In all these places there are already good natural harbours, only requiring some improvements, in order to render them much more extensively available as harbours of refuge for passing ships. With respect to Carlingford Bay, Captain Washington is of opinion that an outlay of 20,000 *l*. would make it into ‘ an admirable harbour of refuge, which would supply all the serious want that is now experienced on the coast between Belfast Lough and Dublin Bay;’ and both engineers and practical mariners sailing from Liverpool, have given evidence of the most important character as to the great advantages which the foreign trade from Liverpool to America, and other places, would derive from a harbour at that point. With regard to Waterford, it is similarly circumstanced. It is described by Captain Washington as ‘ a very fine natural harbour, but with a flat or bar having only 12 feet over it at low-water spring tides. To dredge a channel through that to a depth of 18 or 20 feet, at a cost of 20,000 *l*., would make it a good harbour.’ And Captain Washington adds, that ‘ there are no two spots in the whole of the United Kingdom at which good harbours of refuge could be got at so small an outlay as at Waterford and Carlingford;

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particular spot within the limits indicated at which it will be most beneficial for the public at large that such harbours of refuge shall be constructed. Your Committee is of opinion that, considering that the harbours now recommended are almost exclusively, with a view to the security and development of the mercantile marine of the country, this Commission should be placed under the management and direction of the Board of Trade, which department has now within itself a naval branch; but that great benefit might be expected, if it included some of the able officers of the Admiralty, connected with harbours. Your Committee is also of opinion, that the mercantile and shipping interest should be well represented upon it.

"Your Committee will now proceed to consider the evidence it has taken upon the important financial questions which have arisen in the course of its inquiry as essentially connected with the subject. The cost of the proposed great national improvements has already been stated at 1,700,000 £.; or, if spread over 10 years, at the rate of 170,000 £. a year. Taken by itself, this is no doubt a large sum; but when taken in relation to the immense objects to be attained, your Committee would respectfully submit that the sum is a very small one. The whole amount is not greater than has already been expended upon the Houses of Parliament; and the annual sum which would be necessary for 10 years would not be greater than is paid by the public for the mail services respectively between London and Dublin, and between this country and the Australian colonies. And when it is considered that these works have for their object the removal of danger in the navigation of our coasts, which at present involves an annual loss of lives to a number exceeding 800, and of property to the amount of 1,500,000 £., it will hardly be thought that it is one of less importance. Not that the Committee would wish it to be inferred that it is of opinion that the whole of those losses would be obviated by the proposed works; but it is of opinion that if a considerable portion were prevented, of which there can be no question, the case is strong enough to induce a great effort to be made by Parliament and the Government to accomplish them. Your Committee would remark, that although this large annual money loss, to which reference has been made, is extensively distributed among underwriters, mutual insurance offices, and private shipowners, and is thus not so obvious in its full magnitude at first sight, yet that it nevertheless constitutes a real abstraction to that amount from the national wealth; and that any expenditure, the effect of which shall be to prevent or mitigate these losses, may fairly be regarded, in a national point of view, as an investment, the value of which is to be judged by the amount of the national saving effected thereby. Regarded from this point of view, and supposing that the important works now suggested were to prevent a loss of property only to the extent of 30 per cent., the whole outlay required would be defrayed by less than four years' saving effected by it. With regard to the saving of life—a question which, in public importance, and as involving the necessity of action on the part of Parliament, must be looked upon as one of much greater moment—your Committee would remark, that the proposed works would in all probability be the means of saving a larger proportion than in the case of property. The loss of life is generally the result of total wrecks, and it is that class of casualties that would be most avoided by harbours of refuge on the parts of the coast referred to. Captain Washington states, in his evidence, that in a single night, off the port of Wick, 100 lives were lost by a gale suddenly springing up, and that, as a consequence, 47 widows and 161 children were left entirely unprovided for. There is no doubt that had the proposed harbour of refuge existed, these lives would have been all saved. Your Committee would suggest that there are many considerations, both of a humane and economical character, which entitle this part of the subject to the most serious consideration of the Legislature.

"But in reverting again to the purely financial part of the subject, your Committee would now consider the evidence which has been given to it, in relation to the justice and the policy of rendering these harbours in part, if not whole, self-supporting by means of a charge upon shipping. It is no doubt the case, in respect to trading harbours, that they are as a rule entirely supported by dues levied upon the ships which use them, and that this principle is recognised as being at once a just and beneficial one; just, because those for whom conveniences are made by corporate bodies and others, are entitled to pay to the communities at whose cost they are made, a fair remuneration for the service thus conferred upon them; beneficial, because it is only by an equitable arrangement of this kind that communities, whether large or small, can be expected to make these improvements so useful to the shipping trade. Now it appears to your Committee that the principle which distinguishes private trading harbours from harbours of refuge, and which points them out to be the objects of local and private enterprise, is, that they are constructed only in reference to the wants and convenience of such localities; whereas Harbours of Refuge upon our open coast are constructed, not for the use of any individual port or community, but for the use of all the shipping, both British and Foreign, frequenting or passing our coast; and it seems, therefore, to your Committee, that the entire community of the country and the Government stand in the same relation to Harbours of Refuge as individual communities and corporations stand in relation to private trade harbours. It has been maintained by some of the most able witnesses that Harbours of Refuge bear much the same relation to shipping as lighthouses; that both are intended for general security and protection, and that both are more useful at times of emergency than at others, and that there is no reason by which the one is made self-supporting by a charge upon shipping, that does not equally apply to the other. It has appeared to your Committee in the course of its investigation of this point, that inasmuch as coasting vessels on the sea are now run in competition with railways on land, there-  
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would be a manifest injustice to the owners of the latter, if their competitors were not only placed at an advantage as compared with them, by having their security provided for so as to lessen their risk at no cost to themselves, but that they (the owners of railways) should actually bear the burden as a part of the taxpayers of the community; and this point will appear more clear, when it is considered that every diminution of risk at sea operates as a direct money advantage to shipowners, by reducing the amount paid for insurance. In the case of vessels mutually insured by the body of shipowners, as is the practice in the ports in the north of England, every reduction of loss must operate as an immediate money gain; and with regard to those which are insured by underwriters, it is well known that the rates are determined by a close calculation of the risk as shown by an average of the losses; and it is therefore in proportion as the average number of losses diminishes, that the charge becomes reduced. In this view it is obvious that the dues paid by shipping for lights, and for Harbours of Refuge, can only be regarded in the shape of an insurance against risk, and as reducing to a far greater extent than such dues amount to, the charge which would otherwise be made to cover the increased risk if there were no lights and no harbours. Captain Sullivan has shown that if the premium of insurance upon colliers between Newcastle and London were, in consequence of the establishment of a great Harbour of Refuge in Tees Bay, reduced only by one-twentieth, it would afford a sum sufficient for all purposes to be collected for dues for such harbour, upon the principle that all vessels paid for which it was available. Another reason which appears important to your Committee in favour of the view of these works being constructed upon the principle of being in part or in whole self-supporting is, that upon that principle there is much greater probability of their being undertaken and carried forward with spirit and speed than if it were attempted to consider them as a charge to be finally defrayed by the public—from the Consolidated Fund; and your Committee is of opinion that such is the importance of these harbours to the shipping interest, that it would be infinitely preferable to submit to the small charge which will be necessary for the purpose, than to hazard their postponement for an indefinite period of time.

"But admitting that every principle which regulates respective private interests in respect to the expenditure of public money, points to the justice of a charge being made upon shipping for the use of the harbours, a question of importance has been raised before your Committee, which it is of the utmost consequence should be clearly determined. On one hand it is contended that a small and uniform charge should be made upon all ships navigating the part of the coast upon which these harbours are proposed to be constructed, upon the principle that the expenditure is incurred equally for the safety and security of all, in the case of need, and that all alike will profit by the reduced risk, and the consequently smaller premium which will be paid for insurance. This would be treating Harbours of Refuge exactly as lighthouses are now treated in respect to the mode of their maintenance, by dues upon shipping. On the other hand, it has been contended by others—admitting that the principle of payment is a right one—that the charge should be confined exclusively to those ships which actually use the harbours, and that it should be sufficiently high to raise the necessary sum of money. This would be treating Harbours of Refuge in the same way as private trade harbours are now treated, those vessels only paying which enter them. It appears to your Committee, however, that there is in this respect the widest distinction in principle between the two classes of harbours; those of the one class are constructed exclusively for the private trade of the ports to which they are attached, those of the other for the general security and benefit of the entire trade passing the coast upon which they are constructed. There is, moreover, an important practical reason which has been brought before your Committee against the latter view of the case. It has been contended, and proofs have been adduced to maintain the reasoning, that such is the aversion of the masters of sailing ships to incur expenses on behalf of their owners upon their own responsibility, that they would too often rather incur great risks, which might prove fatal, than take shelter in such harbours, especially as on this principle the charge would require to be considerable; and that thus the very object of the harbours would be frustrated to some extent. As the saving of life as well as property is the main object for the construction of such harbours, your Committee is of opinion that the only true policy in relation to them is that which will induce to their freest and most extensive use. Your Committee is further of opinion, that it is a manifest fallacy to conclude that only the vessels which happen from stress of weather to be driven into them, are those which derive benefit from them; but that all vessels, the security of which has been promoted by their existence, share equally, as has been shown by the diminished risk. On every account, then, your Committee is of opinion that the first named principle, that of making a uniform charge upon all ships passing such harbours in their course, is the only true one: first, because it is just that all should pay for a benefit in which all participate; second, because if a general charge is made, a very small one, which will be scarcely perceptible, will suffice, while if only ships which happen to require to take shelter are to pay, the charge must be large; and, third, because in the one case every inducement would exist for freely using such harbours in case of need; while in the other case, a great inclination would exist to hazard the danger of the sea rather than incur the expense of seeking shelter. In adopting this view, your Committee is fully aware of the long and deeply rooted feeling so justly felt by those connected with shipping upon the subject of passing tolls. But this objection your Committee believes, from the evidence before it, has arisen almost entirely from the great abuses of that system in past times, when ships were required to pay passing tolls in respect to lights and harbours which did not lie in their course, and which could not be of any service to them, either as affording safety, or as reducing the estimated risk of their voyage. But it has been represented to your Committee,



that since the light dues have been levied upon the obviously just principle of requiring vessels only to pay for such lights as lie in their course, the objection alluded to has entirely disappeared. And your Committee would upon this subject desire to express its opinion in the strongest terms, that if this principle is adopted in respect to dues for Harbours of Refuge, the greatest care should be taken to impose such dues only upon ships which in their natural course would pass such harbours, and which would therefore benefit by them.

"Your Committee attaches so much importance to this part of its inquiry, as bearing upon the practicability of the works which it has recommended, that it is deemed desirable to extract the evidence given by Captain Sullivan, in whose views the Committee generally concurs, and that given by Mr. Cowan, who took a different view. The following were the replies given by Captain Sullivan to questions from the Chairman :

"1106. You think that 1,500,000 £. a year would not be an over-estimate of the loss, broadly stated, of property by shipwreck and casualty on our coasts?—I should think it a very low estimate, because that would not be 1,500 £. a piece for ship and cargo of those totally lost, leaving out the damaged ones; the wrecks are 837 the lowest year, which was the last year; the wrecks averaged roughly very nearly 1,000 a year, and at 1,500 £. a piece, that would be 1,500,000 £.; and I think that that is a very low estimate to take the vessels and cargo at, even allowing a large proportion for the vessels in ballast.

"1107. The principle upon which you maintain lighthouses on the coast is by charging a toll to the vessels which use them?—Which pass them, or which are liable to pass them, even if they are rather out of their track. Vessels going to the north of Europe are charged with lights on the east coast of England to a certain extent, even though they may have a fair wind, and go straight away from them.

"1108. And that charge is made upon the principle that lighthouses are established for the use of the ships navigating the particular seas where they are established, and therefore being to them an actual money value in the shape of security?—Yes.

"1109. The principle upon which passing tolls have hitherto been regulated has been rather indiscriminate, and without regard to the ships that used or were likely to be benefited by those harbours upon which passing tolls have been charged?—Yes; and that has very properly caused a very strong feeling against them; for instance, vessels have paid for ports that they could not possibly use from their draught of water.

"1110. The feeling against passing tolls, therefore, has been created by the injustice of vessels being charged with those tolls, which could not by any possibility avail themselves of the harbour for which they are so charged?—Certainly, I think so; I do not think, as a rule, that any parties connected with the shipping interest object to pay anything which they get a fair value for.

"1111. Would it be in accordance with the same principle that you now charge for lighthouses, if a small charge were exacted from vessels passing those parts of the coast whereon a harbour of refuge might be established?—I think all vessels would be glad to pay, for the sake of getting a harbour of refuge; that is merely an opinion; I do not know the opinions of men in the trade.

"1112. What is the principle by which you now determine what vessels shall pay for certain lights?—The lights that they pass or might pass, I think; it is an old scale drawn up by the Trinity House and by the other Light Boards; the fixing of those does not rest entirely with the Board of Trade.

"1113. The Trinity House determine what vessels clearing out from particular ports to other ports shall be charged with particular lights?—Yes; they are charged with every light they can possibly pass upon that route. For instance, vessels bound from Plymouth to the Baltic would pay for all the English lights on the east and south coast; I think as far north as Flamborough Head. I am not quite sure as to the exact limit, but it is in that way.

"1114. It rests with the discretion of the Trinity House to determine what vessels shall pay for particular lights?—Yes.

"1115. And, as far as you know, the principle adopted by the Trinity House in determining that, is that vessels shall pay for lights which they either do or may use in their ordinary route?—Yes, I think so, certainly.

"1116. If the same principle were adopted with regard to harbours of refuge, can you see any distinction between the two to create a grievance on the part of the shipowners?—I think it would be a very difficult point to draw the line between vessels that passed them, so that there could be no doubt, and those that went in another direction, and there might be a difference of opinion whether they were likely to avail themselves of them or not.

"1117. Would it be more difficult in the case of a harbour of refuge than in the case of a light?—I think perhaps the principle used in the light might be applied to it. My own idea is, rather than drawing a line, that, supposing a toll was desirable for a good harbour of refuge, vessels coming to ports in its immediate neighbourhood, when they could get no shelter in bad weather, as a matter of course; to or from those ports, those vessels might pay a passing toll for it; and vessels passing from one part of the coast of England or Scotland to another passing the harbour might justly pay for it a passing toll, which would of course give them the right of entry to the harbour without any additional toll. Then in the case of the vessels leaving and going across the North Sea that might possibly sometimes use it, but yet could hardly be said to pass it, a different toll might be levied upon them; they might pay a much higher toll for every time they used it.

"1118. With regard to vessels sailing from the Thames to the north of Scotland, or to any of the intermediate ports north of Newcastle, there could be no doubt in that case that a harbour of refuge established in the Tees Bay would be strictly available for such traffic?—Certainly they must pass it.

"1119. Therefore there could be no doubt that it would be available to the north and the south for that particular traffic?—None whatever.

"1120. With regard to vessels sailing from the Thames to the Baltic, or the coast of Sweden, might not such a harbour of refuge upon that coast be available for vessels going in that direction?—Yes, for sailing vessels particularly, but not steamers; and yet it would be difficult to draw the line.

line in fixing the toll that steamers should be exempted, and that sailing vessels should pay, and you could hardly say the steamers going nearly a straight course would pass it; they would in going to Scotland, but not in going to the Baltic from London.

"1121. Take vessels coming from the Baltic, through the Pentland Frith, to the west coast, the harbour of Wick; if there were one established, would it be ordinarily available for those vessels?—Yes, decidedly; and they might fairly be charged a toll for it.

"1122. That would be in the direct course?—Yes, it would be in the direct course.

"1123. It would be, therefore, a question of degree and fine discrimination what vessels should pay a toll for any particular harbour of refuge that might be established?—Yes, I think so.

"1124. And it must be determined upon somewhat similar grounds to those now adopted for the payment of light dues?—Yes, except that I think it would be better to draw a broad line, that vessels should pay on passing, in order to prevent any dispute upon that point, which would be sure to arise; all vessels going from Hull to ports on the Continent, or to London, would be to the southward of it; it is possible that a sailing vessel might be driven back, and use that harbour, but not generally; in all those cases I think that a harbour toll might be levied, and that a very much higher rate should be paid by vessels entering the harbour, which were exempt from the passing toll.

"1125. Is there a general scale of light dues, or are they uniform?—No.

"1126. Are the charges for any given light uniform to all vessels having to pay it, or is there a scale in proportion to the use?—No, it is uniform; the coasting vessels pay one-eighth only of the vessels going foreign, but it is the same per ton to all vessels that are charged.

"1127. You suggested just now, I think, that in the case of vessels going from the Thames to the Baltic, or to Archangel, or to any other northern port, inasmuch as those vessels would be less likely to use a harbour of refuge on the east coast, a smaller uniform toll might be charged to those vessels than to coasting vessels, which would be more likely to use it?—No; I would exempt those vessels that could not be said to directly pass the port; but I would charge them much higher when they used the harbour.

"1128. I understood you to suggest the former also?—No, I did not.

"1129. Do you see any objection to a smaller charge being made to vessels going to the Continent, than to vessels going coastwise?—I think it would be very difficult to draw the line there, because sailing vessels would be very much more likely to use it going to and from the Baltic, than steamers.

"1130. I do not speak of a line being drawn between sailing vessels and steamers, but I speak of a distinction between vessels going to the Continent, and vessels going to some part of our own coast?—I think it would be difficult.

"1131. I do not speak of a graduated toll to different ports, but only of a distinction between vessels going to some part of our own coast, and vessels going to the Continent; there would be no difficulty in drawing that distinction, would there?—You could easily draw it, but I do not see how you would arrive at that difference of toll; it would be very difficult to fix a toll that would be fair to both.

"1132. Would it be possible to fix any toll with reference to coasting vessels, which would be exactly just as between different ports?—I think so; I think that all vessels that must pass in their track might pay a small passing toll.

"1133. Is it not quite clear that the amount of advantage which a harbour would give, would vary in some smaller or greater degree in the different ports to which it was available?—If vessels passed that harbour of refuge, then the toll might fairly be charged equally to all, wherever they were going to.

"1134. Is it not the fact, that in all these cases you must take a sort of average; you cannot go into a minute calculation of the precise advantage which a ship derives from the particular harbour or the particular light?—Certainly; and that is the reason why I think it would be so difficult to fix a toll upon vessels going across; I think it would be better to charge them only when going into the harbour.

"1135. My questions have no reference to a scale of charges either for one class of ships or another, but to a general distinction between the utility to the one class, taken as a class, and to the other class, taken as a class; would it not be the case, that a vessel coming from the Thames to Newcastle, to Hartlepool, to Stockton, or any of those immediate ports, would have a greater advantage from a harbour established there, inasmuch as they must keep in towards the land to make for the port immediately for which it is destined, than for a vessel going to Leith, that could keep out more at sea, and avoid the immediate danger of the coast in many states of the wind?—I think with a heavy gale on shore, which is the only time that the one vessel would use it; the other vessel would probably be glad to run for it too; but certainly with a south-east gale the vessel would run on for her port at Leith, while she must run into that harbour of refuge if bound to Newcastle.

"1136. Those are distinctions which, in point of practice, cannot be made?—I think between one coasting vessel with another you can only make the distinction of their going by.

"1137. There is no distinction in the charge for lights?—No; you must draw the line somewhere; and I think it would have to be vessels that did not pass it and vessels that did.

"1138. Take the harbour of refuge in Tees Bay; all the vessels going through the German Ocean would pass it at a greater or less distance?—A vessel is as near her port when she is off the coast of Norfolk as she is in Tees Bay, going to the Baltic, or very nearly so; she literally does not pass it; she leaves it at right angles to her course.

"1139. But the entrance to the Baltic is further north considerably than Tees Bay?—Yes; but it is so far to the eastward that I could not say that a vessel was passing Tees Bay if she was bound to the Baltic from any port south of it.

"1140. Still she is going through a sea, which in a strong south-easterly wind might make it desirable to run for the harbour of refuge in Tees Bay?—I could not say myself that she could be brought under a passing toll equally; I think you would have to exempt all vessels going to the Baltic from ports south of the harbour.

"1141. You have suggested that in the event of vessels going to the Continent occasionally using the harbour of refuge, it would be better to charge a higher toll when they entered the



harbour and used it?—Yes; all vessels which could not be brought under a passing toll, I would charge a higher toll when they entered the harbour.

"1142. Do you not think that it would be a great advantage to vessels using or passing a harbour of refuge that there should be a uniform small toll charged upon all rather than a toll charged for the use of the harbour when it was used?—Decidedly; those that often passed it, because the toll might prevent their using it. In the case of a collier, for instance, they try to sail very cheaply, and where the owners complain of every pound that the captain spends, he would be induced to try to keep the sea rather than pay the toll and try the harbour; but if he had to pay a small toll every time, he would have every inducement to run in.

"1143. You would recommend that a uniform toll should be charged of a small amount, and that no toll should be charged for the use of the harbour?—Decidedly.

"1144. As the object of a harbour of refuge, in a national point of view, would be for the purpose of saving national property and lives, you think that every possible inducement should be given to shipowners and captains, without let or hindrance?—Decidedly.

"1145. And therefore, taking that view of the case, you would say that under no circumstances should any toll be charged for the use of the harbour when it is used?—Unless in the case of vessels going from southern ports to the Baltic. You could not charge a toll on English vessels going from France to the Baltic; all that class of vessels might fairly be charged when they enter.

"1146. Where it was possible to charge a small and much diminished toll, somewhat in proportion to the diminished chance of the harbour being used, would not the same principle rather point to that small uniform charge being made than for a large charge being made for the use of the harbour?—Yes; and perhaps to sailing vessels it might be more easily applied; but I think if you attempted to put a small toll on steamers going from London to the Baltic for a port there, the owners of the vessels would cry out against it very much; they would say, very naturally, that their vessels were not likely once in a dozen voyages to see it.

"1147. In the case of sailing vessels there would be more chance?—In the case of sailing vessels there would be more chance in coming back, not in going.

"1148. Supposing there were a very small tonnage charge placed upon coasting vessels literally passing such a harbour, and a charge, perhaps very much smaller, say one-half, placed on vessels going to the Continent that might use it, would such a very minute uniform charge not be preferable to a large occasional charge when the vessels had to use the harbour, and which the larger it was of course would form a greater inducement for the captain to avoid incurring it?—I cannot think that you would be able to arrive at a passing toll for vessels so little likely to use it.

"1149. Speaking of the harbour of refuge generally, the probability of its use would be a question of degree?—Yes, entirely.

"1150. Might not the details of that nature be very safely left to the Board of Trade to determine from time to time what rates should be charged, and what vessels should be subject to those rates?—Yes; I think there could be no doubt about the passing toll; but it would be difficult to decide without consulting some of the parties interested in it.

"1151. Of course the Board of Trade never would come to any decision without taking proper steps to ascertain the justice of the policy which they might adopt, but after all it would be a matter of detail to be left to some department to execute?—Yes, quite so; and a minor part too. The principal thing would be the toll. The toll would really not probably prove to be a tax on those vessels at all, for I have no doubt that it would be such a small per-centage on what they now pay for insurance, that the having a safe harbour under their lee, would reduce the insurance in an equal proportion with the toll; I believe a great deal more; I think I am speaking quite on the safe side. I have no doubt that the per-centage of losses which regulates the premium of insurance would decrease in that immediate neighbourhood; so that the per-centage of insurance paid would come down more than the toll. Roughly calculating, if a penny a ton was paid by all the trade passing that harbour, taking the trade from those five ports alone, about 500,000 tons from Newcastle may go northward; on the other hand, an equal quantity of the Scotch trade passes from Scotland to London, and they would fairly pay; so that while perhaps the 500,000 tons might be exempted, it would be made up by the Scottish trade; so that the trade of those ports we may fairly take at a passing toll of 1 *d.* per ton each way, which would be 1 *l.* a voyage for each collier, by which you would get something like 40,000 *l.* annually; that is only 1 *s.* 6 *d.* per cent. on the value of the vessels, supposing them to be worth 1,500 *l.*, cargo and all. Now, I suppose the insurance must be one per cent. on each voyage.

"1152. Are you aware that it is the habit of shipowners in Sunderland and the neighbouring ports to have what they call mutual insurances?—Yes; I am keeping them in view; the vessels are nearly all insured in mutual insurance companies, and therefore the per-centage of loss shows really the premium that they pay.

"1153. I think the principle upon which those insurances are made is that of a mutual contribution amongst all the shipowners to make good any loss that takes place?—Yes; therefore, the per-centage paid is really the per-centage of premium, because there is no profit made; and I should suppose that 1 *s.* 6 *d.* per cent., which 1 *d.* a ton a voyage would be, would be such a trifling per-centage upon what they must pay for their losses, that a harbour of refuge would save them a great deal more than they would pay for the toll.

"1154. In point of fact, it would be no additional charge whatever to the shipping?—No; I think the harbour would be eventually a gain to them, even though a toll was paid for it."

The following is the Evidence of Mr. Cowan upon the same subject:—

"3383. Mr. J. H. Gurney.] With regard to passing tolls levied upon vessels generally, do you consider that a proper mode of defraying the expenses of a harbour of refuge?—I think that the levying of passing tolls would be a very improper mode, and I would hardly like to be the individual with the hardihood in the present day to recommend it; anybody acquainted with the nature of passing tolls must be quite satisfied that the time has come when they ought to cease.

"3384. Do you think that the opinion which you have now expressed is that which is entertained by the shipping interest at Newcastle generally?—Yes.

"3385. Lord Naas.] How do you propose that the expenses of this harbour of refuge, if made, should

should be defrayed?—I think, if the harbour is constructed at the expense of the Government, it ought to be free.

"3386. Do you think it would be fair to make a harbour of refuge, which would be entirely for the purposes of trade, and to which the shipping interest should not be called upon to contribute in any way?—If you call upon the shipping interest, and make the harbour in any particular locality where they are to pay when they go to it, it is my opinion that it would be a failure, that is, that the ships would not go to it if they had to pay for it; vessels would go to it occasionally, but any calculation based upon the supposition of vessels taking it as a mere harbour of refuge, I would have no reliance upon, taking the coast practically.

"3387. That is, as a harbour toll?—Yes.

"3388. But, supposing the whole of the shipping interest whose ships are likely to use that harbour were called upon to contribute to the support of the erection of this harbour, do you think that that would be an unfair claim upon them?—Yes, I think so, taking the radius of a locality of a coast, and saying that every ship should pay so much whether she made use of it or not; you would find a host of opposition to such a project, I have no doubt, all away along the coast.

"3389. Do you think that the existence of a large harbour of refuge upon the east coast of England would have any effect upon the insurance paid upon ships?—Not at all; I happen to be a director of an insurance company, and have been so for many years, and I would say certainly not at the present moment. When the thing has worked out in practice, and when it is really found, by statistical evidence, that the risk is diminished, then would be the time; but it would be a great length of time before you would see the effect of it.

"3390. Supposing it were found that the existence of a harbour of refuge on the east coast of England would materially reduce the number of wrecks, do you think that the cost of insurance upon the ship in that district would or would not be materially reduced?—It would not be reduced at all for some length of time; any clubs would only think of reducing when they were practically convinced of the advantages.

"3391. If your answer is worth anything, the only object of a harbour of refuge to the shipping interest is the preservation of life, because, if the insurance would not be materially reduced, there would be no gain?—Yes, you would save the property.

"3392. You would not save it to the shipowner, but to the insurance company?—Your question goes to this: that immediately a harbour of refuge is made, you go out into the town where you are; if it is in London, you go to Lloyds, and you expect, instead of getting your ship insured at 4½ or 5 or 6 per cent., to get it done at three per cent., and that would be quite a mistake.

"3393. If it would not be reduced, the gain to the shipping interest would be very small?—No, I do not say that.

"3394. Is it not the custom of the shipping interest to fully insure?—No, I do not know that it is the custom of the shipping interest to fully insure.

"3395. In what proportion do they insure?—Probably to the extent of two-thirds. If you talk to me as a director of an insurance company, and ask me my opinion, I can give you my answer. I would not take any less premium until I was convinced that there had been an effect produced, that is, that that harbour did save vessels to such an extent as to warrant that reduction, and that could only be ascertained by lapse of time.

"3396. You do not think, then, that the shipping interest on the east coast of England would contribute willingly in anyway to the formation of a harbour of refuge?—I think that they would not willingly do it, because there is a strong notion that the thing should be done in another way.

"3397. Mr. Liddell.] Is not it the case that the mutual insurance system is very extensively pursued amongst the shipowners themselves in the north of England?—Yes.

"3398. Lord Adolphus Vane Tempest.] Is not the insurance that takes place on the east coast chiefly conducted on the principle of mutual insurance amongst the shipowners themselves?—It is so principally; there is a large amount done in that way.

"3399. Therefore a reduction in the amount of the loss of ships on the coast would directly benefit the shipowners, as they would be benefited by the reduction of the loss of their insurances?—No doubt; but the question put to me was, Would the premium of insurance be less?"

"3421. Chairman.] The ground upon which you have recommended so strongly a harbour of refuge on the north-east coast is the fact which is exhibited by the wreck-charts, showing an unusual amount of wrecks upon that part of the coast, is it not?—Yes, it is.

"3422. It is your hope that the formation of a harbour of refuge would materially diminish the loss of property and the loss of life?—Yes.

"3423. And would, therefore, very much circumscribe the number of wrecks?—Yes, it would.

"3424. In that case, the loss of property which now falls either upon the shipowner or the insurer, would be very greatly diminished?—It would be diminished, no doubt of it.

"3425. There has been always a very strong opposition to the old system of passing tolls, whereby vessels were obliged to pay for Ramsgate Harbour that went to the northabout, and for other harbours which they could never use?—Yes.

"3426. And a very strong prejudice has been created in the minds of shipowners in consequence of their having to pay for harbours that they could never use?—Yes, a very strong feeling; because they paid for what they did not get.

"3427. And formerly the same kind of objection was entertained with regard to paying for light dues, in respect of lighthouses which vessels did not use?—Yes, the same objection was entertained.

"3428. That system of lighthouses has been very much improved of late?—Yes.

"3429. So that now vessels only pay for the lights which they really use?—Yes, or which are thought to be of service to them.

"3430. And that they think no hardship?—I think not; there are people who think that the charges are too much, and that they ought to be modified.

"3431. So far as the principle goes of charging vessels for the use of those lights which they pass, and which are of use to them, there is no objection to the principle of paying a small toll, sufficiently large, but not too much, for the maintenance of those lights?—No, I do not think there is.

"3432. A harbour of refuge upon the north-east coast would very much diminish the loss of the shipping

shipping upon that part of the coast of England?—It would diminish the loss of the shipping on that part of the coast of England considerably, there is no doubt of it.

" 3433. Now, in the same manner as vessels now pay for lights which they may pass during the day, when they are of no use to them, but which they may also pass during the night, when they may be of use to them, would it be unreasonable for shipowners to object to the payment of a small toll, or a very small rate, for the purpose of constructing and maintaining a harbour which would be of use to them in the event of storms, with reference only to such vessels as pass the harbour, and for which it would be available?—I think it would, because you would work upon the principle of a passing toll.

" 3434. A lighthouse toll is a passing toll, is not it, in one sense of the word?—Yes, but a lighthouse toll is a toll already in existence, and you must do something to extinguish it; and to modify it is the easiest way to do that; but I draw a distinction between a new passing toll and one already existing, because, if you were to attempt to lay on a moderate toll for vessels passing any particular spot along that coast, you would have a very great opposition to any measure of that kind, inasmuch as the people would say (I know that is the feeling, because I know it with reference to what has transpired in the Board that I have the honour to preside over) that if a charge is to be made it should be made for the *bonâ fide* using of the port.

" 3435. You think that the present mode of charging light dues is an equitable mode?—I should say that it is; but it is one of those things that should cease to exist as soon as it can fairly be extinguished. These lighthouses have of late been a very objectionable thing to the shipping generally.

" 3436. Would you propose to extinguish light dues, by placing the charge upon the consolidated funds of the public revenues at large?—I should think that that would probably be a fairer way of doing it. In the end the shipowner would get less freight, and the nation would benefit by that; and I think that it would be perhaps quite as fair a way, or fairer.

" 3437. That would apply to only a particular part of the nation, would it?—To the nation generally.

" 3438. Do you see any other objection to a passing toll with regard to a harbour of refuge for a ship, for which the harbour is made, than to the use of a light for a ship which passes that light?—I do; the distinction is this: lights are already rates in existence.

" 3439. I ask you, whether you see any distinction in the nature of the charge?—I see a distinction in this way; you are going to create a new passing toll for vessels that make no use of the harbour at all; now, admitting that they make no use of the light, the light may be of material benefit to them, although they make no use of it; but the harbour can be of no use to them unless they go into it, and make use of it.

" 3440. If the vessel passes the light during the day, it is of no use to her; if she passes the light during the night it is of use to her; if a vessel passes the harbour of refuge in calm and fine weather, it is of no use to her; but if the same vessel is caught in the middle of a storm, necessarily, on its route to the port to which it is destined, it is of use to her; are they not in that respect the same, that they are for the purpose of vessels passing that part of the coast in the event of an emergency?—Yes; and if the vessels make use of them, it is right that they should pay; but, if they do not make use of them, it is my opinion that they ought not to pay for them; and I think that you would find a great objection to parties paying. Lights are useful, because they do direct the mariner where he is to go, without going into any particular port; but a harbour of refuge is a very different thing, because to pay for going by without making any use of it, is, I think, a material distinction.

" 3441. You do not know of any use that a harbour of refuge would be to any other portion of the community, or any other interest, except the ships that passed it?—Yes; I think it would be of material use to the individuals having cargoes on board these ships.

" 3442. Taking the shipping and the cargo as one interest, the harbour of refuge would be of use only to the shipping that passed it?—It would be only of use to the shipping that passed it.

" 3443. The light is of use only to the shipping that passes it?—Yes.

" 3444. I believe that the practice in the Tyne and the Wear is very much what has been called mutual insurance; that is, the shipowners subscribe; practically, they insure each other, and in the event of a loss, they subscribe their money to make good the loss?—Yes, I know that it is so, because I have been in a club of that kind myself.

" 3445. Then, of course, the charge upon the shipowners in those ports for the risk which they run must be measured by the number of wrecks of their ships in the course of a year?—Yes, no doubt of it.

" 3446. And if, in the very next year, a smaller number of wrecks took place than in the present year, the shipowners of those ports would be benefited to that extent?—They would.

" 3447. With regard to general insurance, when you do it by premiums, those premiums are fixed in reference to a calculation of the average of losses, and you require a certain period in order to determine what that average is?—Yes.

" 3448. But if you found in the course of two years, in consequence of a harbour of refuge having been formed, that the average of loss was considerably less than it had been previously, the competition amongst the insurance offices would lower the premium?—Yes, I think it would; it is only reasonable to suppose so.

" 3449. So far as regards the shipowners and clubs who mutually insure each other, the very first vessel saved by the harbour of refuge would be to them a gain?—Yes.

" 3450. So far as regards those ships insured in offices, as soon as your general average had been reduced, competition would compel them to reduce their premiums?—No doubt.

" 3451. And therefore the lessened risk would be exhibited by the lessened payment by the shipowner one way or the other?—Yes, one way or the other.

" 3452. If you had a very considerable reduction of loss, in consequence of the construction of a harbour of refuge, that would very quickly show itself in the saving to the shipowners of those ports from the smaller losses at sea?—I do not think that it would very quickly do it. Whatever the saving was, they would feel the effect of it, and therefore as soon as ever there was a saving, they would feel it. But I am not prepared to admit that it would very considerably do so till it was tested, in order to see the effect.

" 3453. It

"3453. It would be in proportion to the success of a harbour of refuge, and to the importance of a harbour of refuge upon that coast, that a reduction would be made in the insurance?—Yes.

"3454. If there is to be this great saving of property, irrespective of life, do you think that it would be inequitable, looking to a public expenditure of money, that that particular interest, which indirectly saved some considerable portion of money by insurance, should be charged for the use of the harbour so constructed upon some equitable principle?—I do see objections to making a charge upon them without they make use of the harbour, because, although it is admitted to be a saving, a person may or may not take a harbour of refuge; he may say, 'I am not bound to do this; I think I am a cleverer sailor than other people, and I think I can get through without going into the harbour, but I am very unwilling to pay that tax whether I go into the harbour or not.'

"3455. You are a director of an insurance company on the Tyne?—Yes.

"3456. When a person comes to you to be insured for the London voyage up and down from London, you charge him a rate of insurance, not upon the calculation that he is lost, but upon the mere risk whether he be lost or not, computed upon the average of losses for the year?—Yes.

"3457. Then a person who sails in fine weather and is not lost pays precisely the same as a shipowner whose vessel is lost, supposing the vessels to be of the same character and style?—I hardly see exactly what the question leads to.

"3458. When you charge your premium of insurance, your premium of insurance has reference to the whole number of ships that pass between London and Newcastle, and you calculate your premium of insurance with reference to the proportion of those ships that are lost?—Yes, just so.

"3459. Those shipowners whose vessels are not lost, pay just the same as those whose vessels are lost?—Yes, certainly.

"3460. Therefore, the whole question of insurance is one of average, and you receive a premium that will cover you for that in the course of the year?—Yes.

"3461. Therefore, is it unfair to ask the shipowners whose vessels do not use the harbour of refuge, but which may use the harbour of refuge in case of need, to contribute towards their security placed there for their use, or do you think that it should be confined solely to those who are unfortunate at the time, and are compelled to use it?—I think it is unfair; I think you are going to make the shipowner pay for that which he says may or not be of any use to him; but in the insurance he says, 'I do make use of this, inasmuch as I do not leave the harbour till the vessel is insured.' Having effected that insurance, he pays no more than the man who loses his vessel; but he has made use of the security of the insurance company, and that is a certainty, it is a fact; but it is no certainty and no fact that he will make use of the harbour of refuge.

"3462. If a person insures his vessel in the Tyne for a voyage to London and back, and has no loss whatever, he has purchased a security against the risk, but he obtains nothing from that; you have no loss, and he has no gain by having done it, if he has no loss?—Certainly not.

"3463. If a person pays a small toll for the construction of a harbour which he passes, if he happens to require the use of that harbour it is of great advantage to him, but if not, it is of no advantage to him?—Certainly.

"3464. I think you stated that, in the construction of your own harbour, you thought it equitable to place a rate upon vessels leaving the Tyne, for the purpose of paying for the cost of the harbour?—Yes.

"3465. And you raise your funds exclusively from that source?—Yes.

"3466. You proceed upon the principle, that those who use the harbour, and who have greater security hereafter in coming into the harbour and leaving it, will pay for the security so afforded to them?—Yes.

"3467. Do you think that if you proposed another plan, and said that, as this is for the advantage of the port of Newcastle and Shields, it would be a fair thing to construct this harbour at the expense of the inhabitants from rates raised upon the general population, there would be an objection to that?—Yes.

"3468. Do you think that the people would at once have said, 'This is for the shipping interest; let them pay for it'?—Yes.

"3469. If we are to construct a harbour of refuge at the public expense, do not you think that the public of the United Kingdom would say, 'If this harbour upon the east coast, which we admit to be very necessary and useful, is to be constructed for the benefit of the shipping, is not it fair that the shipping should pay for it, and that we, the farmers of Yorkshire, or in the north of Ireland, or anywhere else, should not be taxed'?—I think it is very likely, and it is quite right; but it is equally right that these shipowners should not be taxed for what they receive no benefit from. You say, we lay on a tax on the Tyne. Undoubtedly we do, but the vessels have the benefit of coming in and going out of the harbour; but the case which you put is this, that the vessel shall pay whether she makes use of it or not.

"3470. Would you confine your proposed toll, in the harbour of refuge, to the vessels entering the harbour of refuge, and using it alone?—Yes.

"3471. I thought you said, that a rule of that kind would deter captains from using the harbour at all?—Yes.

"3472. If we are to create harbours of refuge upon public considerations, should not we do so upon a principle which should induce the largest use of those harbours?—Yes, certainly; it would be right that it should be done upon a principle that it would be the most advantage to the people to make use of it; and I think that you will find that the shipowners generally will tell you, 'When we make use of the harbour we will pay for it.'

"3473. They would also tell you that they would have no confidence in the captain making for the harbour if he had to pay for it?—Yes, I think so; and that if the captain had held on his course he could have run on to his port, and so saved it.

"3474. And in consequence of that, a great number of wrecks would ensue?—Very likely.

"3475. And therefore the advantage of a harbour of refuge would be very much diminished?—If they will run the risk, they ought to pay for it."

"The subject of 'passing tolls' received much consideration from the Commissioners appointed to inquire into local charges upon shipping; and in their Report they laid down principles in respect to them, which, to your Committee, appear sound and just. They say, 'It appears to us that the construction and maintenance of a Harbour of Refuge is a matter of interest, not only to those who seek and obtain refuge within the harbour, but also, although indirectly, to the whole maritime trade of the adjacent seas. Every harbour, however, which is worthy of the name of a harbour, must be regarded as affording, at certain times of the tide at least, an opportunity of refuge to vessels in its immediate vicinity, and many harbours do annually afford refuge to a considerable number of vessels, either wind-bound or in distress. But the connexion between harbours generally and the trade which passes by them is of so indirect and secondary a character, that this connexion would afford no justification whatever for the general imposition of passing tolls. IT IS ONLY WHEN A HARBOUR IS A HARBOUR OF REFUGE IN THE STRICTEST SENSE OF THE TERM, THAT ANY JUSTIFICATION, IN OUR JUDGMENT, CAN BE FOUND FOR THE IMPOSITION OF A CHARGE OF THIS NATURE.' \* \* \* \* \* 'It therefore appears to us,—1stly. That a passing toll levied for the construction, maintenance, or improvement of a harbour is not necessarily unjust in principle. 2dly. That a toll of this character is unjust in principle, unless it be levied for the construction, maintenance or improvement of a Harbour of Refuge in the strict sense of the term. 3dly. That such a toll is unjust even when levied for the maintenance or improvement of a Harbour of Refuge, unless the amount of revenue derivable from those who use the harbour is insufficient to defray the expense thereof.' These were observations made in reference to tidal trade harbours, and with reference to which the claims of the four harbours of Dover, Ramsgate, Whitby, and Bridlington to the special privilege of levying a passing toll were examined; and as in none of those cases, the conditions above stated applied, those tolls were, as your Committee thinks, most justly, recommended to be abolished, inasmuch as the ships upon which they are charged, are not, and cannot be, in a majority of cases benefited by them. Your Committee entirely agrees in the general principles thus laid down by the Commissioners as quoted, and would apply them in their strictest sense, in reference to the harbours of refuge, which they have recommended. In the words of the Commissioners, these works would be 'harbours of refuge in the strict sense of the term,' constructed and maintained expressly for such purpose, available, not only at 'certain times,' but at all times of the tide, and according to all vessels navigating the waters in their vicinity, always a safe refuge in the case of need; a charge, such as is proposed for such harbours, would be entirely in the spirit of the observations made by the Commissioners, and could not be exposed to any of the objections so justly raised against the passing tolls inflicted upon shipping for the four harbours of Ramsgate, Dover, Bridlington and Whitby.

"In considering, however, the amount of the charge which may fairly be imposed upon shipping for the construction and maintenance of these harbours, your Committee is of opinion that there are plain grounds upon which shipowners should not be called upon to defray the whole. In some respects the utility of such harbours would be of a character for which the public revenues of the country might fairly be called upon to contribute; for example, all the works recommended would be less or more useful for vessels of the Royal Navy taking shelter; as coaling stations for ships of war, there being at present no harbour between Flamborough Head and the Fern Island where such a vessel can coal; they would also be useful as national defences, the fixed breakwaters affording great facilities for the erection of powerful batteries. Again, the effort to save life may fairly be classed as a national object. For these reasons, your Committee is of opinion that the charge upon shipping should be placed at an extremely moderate amount, even though the revenue derived from it did not entirely reach the sum required for the purposes indicated. With regard to what the charge should be, Captain Sullivan has suggested a rate of *one penny per ton* upon all vessels which may be considered to be benefited by the harbours to be made; a charge of this amount would, in your Committee's opinion, be sufficient for the purpose, and should not be exceeded.

"The conclusion at which your Committee has arrived, therefore, is, that a charge not exceeding in any case 1*d.* per ton may fairly be made upon all ships entering into, or clearing from, ports in the United Kingdom, which ships, in the ordinary course of their voyages, would pass the harbours to be constructed; and that whatever rate is fixed upon at first, it shall be reduced from time to time, so as not to exceed a total sum, which shall be equivalent to three-fourths of the interest, which should be computed at the rate of 3 per cent., and of the cost of maintenance. Your Committee feels more confidence in recommending this principle for adoption, because it is one so manifestly fair to the rest of the community that no such objection can be taken to it as would be likely to interfere with the speedy construction of these important works; whereas it would have much less confidence in that object being attained, if the charge were proposed to be defrayed from the Consolidated Fund; against which objections might, with every appearance of justice be raised by those not interested in shipping or seaport communities. Your Committee is aware that it would require great care to carry out the principle in all its details, herein laid down for the just distribution of the dues proposed, but it is of opinion that this duty may fairly be left to the Commission, the appointment of which it has recommended.

"With regard to the best mode of construction for harbours in deep waters, your Committee has taken some evidence. There are three modes at present in use: the first may be termed Mr. Rendel's plan, which has been so successfully adopted at Holyhead and at Port-land;

land; the second, which is a modification of the first, is one recommended by Mr. Abernethy, and upon which he has constructed a harbour at Blyth; and the third is the plan of building walls of masonry by means of the diving-bell, as in use at Dover. The first and third of these plans will be found to be described in great detail in the evidence given by Mr. Coode, the engineer in charge of the works at Portland; the second plan will be found to be described in the evidence of Mr. Abernethy. A fourth plan of constructing breakwaters was submitted to your Committee by Mr. Hayes, which will be found to be described in his evidence. No breakwater has been constructed upon this plan in this country, but it is stated that it is being adopted at Melbourne, in Australia. With regard to all the works proposed in this Report, your Committee has no difficulty in recommending the plan invented by Mr. Rendel, as used at Holyhead, or as modified by Mr. Abernethy, first, because it is much the cheapest, second, because works can be accomplished in that way much more speedily than in any other, and thirdly, because in all the cases referred to, there is abundance of material upon the spot to make that plan practicable.

"Upon the subject of employing convict labour in the construction of harbours of refuge, Mr. Coode has furnished your Committee with valuable evidence. Convicts have been employed to a great extent in the construction of the harbour at Portland, but it appears that up to the present time it is somewhat doubtful if much money saving has been effected thereby; and that a longer experience must be obtained before that question can be satisfactorily determined. Your Committee would refer to the evidence of Mr. Coode, where all the circumstances attendant upon the employment of convict labour in this way will be found to be fully stated.

"During the course of the inquiry which your Committee has conducted, much evidence has been received upon the improvements of which the existing tidal harbours are susceptible, as bearing upon the general question of refuge in the case of need for passing vessels. Captain Vetch has expressed strongly his opinion of the great advantages which would be derived from such improvements to the general shipping of the country. But your Committee, however sensible it may be of the advantages which might be obtained from such improvements, is of opinion that this subject should not be mixed up with that of harbours of refuge, properly speaking, but should be kept entirely distinct, and should be left to the local efforts of each individual port. Many of these ports are in possession of considerable incomes from the dues which they charge upon the shipping resorting to them, and have shown a desire to use every means in their power to render the accommodation of their harbours more complete, and the approach to them more secure. At Newcastle-upon-Tyne large works have been undertaken, and are in progress. At Sunderland considerable funds are at the disposal of the River Wear Commissioners, and, if applied to the extension of the piers would be productive of great benefit. It has also been shown that comparatively small sums of money laid out upon the port of Lowestoft, and other parts of the Norfolk coast, would add greatly to the security of their trade as well as of the passing ships. Improvements have been suggested on the south coast, especially near Newhaven; on the coast of Wales, also, and especially at Cardigan, Fishguard, and Newport, it has been represented that essential improvements might be made. But, important as all these may be, especially in reference to the local trades of each, your Committee is not prepared to recommend the outlay of public money upon them, so as to interfere with the great and important national works which have already been adverted to. There is, however, one suggestion which your Committee feels it its duty to make upon this subject, with the view of facilitating these local improvements. Many of these ports are, as has been remarked, in possession of considerable incomes from their own private sources, and are disposed to apply them to these purposes; but these resources would be more available for the required works if they were able to borrow larger sums, upon the principle of mortgaging their present surplus income or future dues, to repay the same within a given number of years, upon the same plan as the drainage loans, or the loans made by the Public Works Loan Commissioners, for various purposes. In many cases applications have been made to those Commissioners, but it is believed that the funds placed annually at their disposal by Parliament are too limited in amount, and have too many claims of other kinds upon them, to enable them to entertain some of these applications. Your Committee is therefore of opinion, that it would be in every way consistent with sound policy to encourage local efforts for the improvement of such harbours, by voting a moderate sum annually, to be specially appropriated to such harbours, upon the same principle and under the same regulations as were applied to the large amount advanced for the purpose of drainage. And looking to the great importance of the object to be attained, your Committee would recommend that such loans should be made at a rate of interest, not exceeding 3 per cent., and should be made payable by means of a sinking fund extended over a period of 50 years.

In conclusion, your Committee cannot too earnestly press upon the House the strong conviction which it has received from the investigation it has conducted, as to the necessity, on national grounds, of these works being undertaken at as early a period as possible, and placed under some system which will secure their steady and speedy progress. Allusion has already been made to the extraordinary increase which has taken place in the amount of shipping entered inward and outward in the foreign trade during the last 15 years: the increase having been from 9,824,562 tons in 1843, to 23,178,792 tons in 1857; but it must be remarked, that in addition to this great increase in the foreign trade, the coasting trade has also increased during the same period from an aggregate of 22,133,000 tons entered inward



and outward in 1843, to an aggregate of 27,065,000 tons in 1857. This increase has taken place steadily from year to year, notwithstanding the occasional checks which have been received during that period to the commercial prosperity of the country, and there is no reason that your Committee can discover why it should not proceed at the same rate. But it must be obvious, that it will be just in proportion as the waters upon our coasts and the approaches to our harbours become crowded, that the risk will be increased, especially when ships become unmanageable in severe storms. If then we are to look forward for ten years, the period which it is assumed will be required to complete the works recommended, it is probable that the continued increase of our trade over that space of time will be such as will show that improvements of the character pointed out in this Report have become absolutely indispensable to the further development of our shipping which will have taken place. Your Committee feels that it may be laid down as an indisputable axiom, sustained by experience, especially of late years, that while the extent of our coasts and the natural facilities they afford for navigation are limited, the trade of the country, and consequently its shipping is capable of and destined to an indefinite expansion; and that the only way therefore by which the former can be rendered commensurate for the requirements of the latter, is by supplementing the natural facilities which we possess, by the construction of great national works upon our coasts, such as your Committee has ventured to recommend. The sum required for them, though considerable of itself, is, your Committee would submit, trifling when compared with the great objects which are to be attained by it; and if the recommendations of your Committee are adopted, even that amount may be prevented in whole or in great part from being any permanent charge upon the finances of the State; but even were it otherwise, your Committee will venture to express an opinion, that considering what constitutes the chief source of the commercial greatness and the political security of this country, and considering the enormous loss both life and property to which the nation is at present exposed from the dangerous and unprotected state of our coasts, and the consequent defective character of our navigation, there is no object for which public money could be so usefully or so profitably employed, having regard to the present and future welfare of the nation.

Draft Report proposed by Mr. *Macartney*; read 1<sup>o</sup>.

"THAT the great and increasing extent of the Shipping Interests of the United Kingdom, the enormous annual loss of life and property from wrecks and casualties, and the entire absence of any shelter on the most exposed and most frequented portions of the coasts of Great Britain and Ireland, demand the serious and immediate consideration of the House. That it appears from official returns laid before Parliament, that within the last 15 years the aggregate tonnage which entered and cleared from the ports of the country has increased from 9,824,562 tons in 1843 to no less than 23,178,782 tons in 1857, being an increase of 136 per cent. in 14 years. That the same Returns show that the registered tonnage of the kingdom has risen from 83,097 tons in 1843, to 250,472 tons in 1857, and that the number of merchant seamen in the same period has increased from 152,611 to 176,387 men.

"That it further appears in evidence that the number of casualties to shipping on the coasts and within the seas of the United Kingdom, in the five years from 1852 to 1856, both inclusive, was 5,218, being, on an average, 1,025 a year. That of these the total losses from all cases amounted to 2,184 vessels, or on an average, nearly 437 each year. That the total loss of life connected with these casualties was 4,148 persons, or on an average of five years, nearly 830 each year. That the value of the property lost by total wrecks may, at the lowest estimate, be taken at one million a year, and by other losses and casualties at half a million, making a total of a million and a half as the annual loss to the country from these casualties on the coasts of the British Isles alone. And further, that this annual loss of 830 lives, and a million and a half of property, is independent of the numerous and serious losses, both of life and property, connected with the fisheries of the United Kingdom.

"That the importance to be attached to these remarkable and fearful facts is derived from a consideration, first, of the great extent of the property and life thus shown to be at stake, and next, from its rapidly increasing progress, since it is obvious, on the one hand, that it is in proportion to the amount of the stake that an effort should be made on public grounds to afford the greatest possible security to our shipping, while it must be equally plain, on the other hand, that the more crowded the waters around our shores become by increased traffic, the greater must be the risk of accidents, and the more urgent must be the necessity for greater accommodation and provision for safety. Whence the practical conclusion which your Committee derive from these considerations is, that however much it may appear that harbours of refuge are now required for the security of our shipping, it is a want that must become more urgent from year to year; and that, inasmuch as the construction of such harbours must necessarily occupy many years, it is of the utmost importance that no time should be lost, first, in determining upon some national policy in relation to them, and next, in immediately acting upon such determination.

"That the districts of the coast which it appears to your Committee are most exposed to danger, and where works of a national character are most required, are,—

- 1st. "That part of the east coast of Scotland comprised between the Pentland Firth and the

the Firth of Forth, on which the harbours of Peterhead, Frazerburgh, and Wick have been specially pressed upon your Committee.

2d. "On the north-east coast of England, between Fern Island and Flamborough Head, where Tees Bay and Filey Bay have been pointed out as eligible spots.

3d. "The west coast of England, between the Land's End and the south coast of Wales, including the Bristol Channel, in which St. Ives, Padstow, Clovelly, Lundy Island, and the Mumbles have been referred to in evidence.

4th. "The coasts of Ireland, where the Skerries, near Portrush, on the north, Lough Carlingford on the east, and Waterford on the south have been strongly supported in evidence and possibly a point in the Isle of Man.

"That in naming the places which have been specially referred to in evidence, your Committee does not venture to determine the particular spots at which harbours of refuge should be constructed. The various grounds on which the merits of the different places rest are of a nature necessarily so technical in their character, involving questions of engineering and nautical skill, as well as to the facilities which the different spots offer for construction by the supply of material and other considerations, that it has appeared to your Committee that the subject could only be satisfactorily determined by a Royal Commission, and they therefore strongly recommend to the House that a humble Address be presented to Her Majesty, praying the appointment of a Royal Commission to be placed under the Treasury, and if not exceeding their limits, your Committee would venture to suggest that it should not exceed seven in number, and that the following departments and boards should be represented upon it, viz., the Admiralty, Board of Trade, Trinity House, Lloyd's, and the Mercantile Marine, besides an officer of the Royal Engineers and a Civil Engineer.

"That, as the subject is one which, in the opinion of your Committee, is of pressing importance, and admits of no unnecessary delay, that the House should recommend to the Treasury that it be an instruction to the said Commission, when appointed, to make arrangements for visiting the several ports immediately on the rising of Parliament, so as to be enabled to transmit their plans and reports to the Treasury before the close of the present year.

"That in the opinion of your Committee, the Evidence which has been received upon the improvements of which the existing tidal harbours are susceptible, as bearing on the general question of refuge in case of need for passing vessels, deserves the serious consideration of the House. It has been shown in evidence that there are many harbours round the coast in which the loan, in aid, of a small sum of money, at a low rate of interest, on the security of the rates, similar to the drainage loans, or the loans made by the Public Work Loan Commission, would confer a great benefit, and is in every way consistent with sound policy; and your Committee would strongly recommend such a plan to the favourable consideration of the House."

Draft Report proposed by Sir *James Elphinstone*; read 1°.

#### "FIRST.—THE EAST COAST OF SCOTLAND.

"BETWEEN the Orkney Islands, on the most northern extremity of the east coast of Scotland, and the Frith of Forth on the south, there is no harbour for the shelter of vessels caught in storms, except Cromarty Firth, and that is deeply embedded in the Moray Frith, and so exposed to variable winds as to be practically unavailable for the great bulk of the shipping passing the east coast, which is generally of a very bold and dangerous character. The Frith of Forth forms a safe refuge on the south, while the harbours of Longhope, Deersound and Widewall, in the Orkneys, according to the evidence adduced before the Committee, are 'very fine natural harbours,' and 'harbours of refuge themselves;' between the Orkneys and the Forth, therefore, there is a seaboard of upwards of 250 miles of coast totally unprovided with refuge.

"The traffic on this coast is very considerable: independent of the coasting trade, and that of the Orkney and Shetland Islands, there is a large number of vessels trading with the Baltic, Archangel, and other northern ports in Europe; there is likewise a large shipping trade betwixt the eastern ports of Scotland and America, while numerous ships are constantly plying from the east to the west coasts of Scotland and England, and also to Ireland. A very large trade has of late years risen up, and is still increasing, betwixt the Continental ports and Wick, Banff, Fraserburgh, Peterhead, and other places on the north-east coast of Scotland, in the export of herrings.

"The returns produced to the Committee by Mr. Stevenson, the engineer to the Northern Lighthouses, show, on an average of the last 10 years, that 7,763 vessels passed during the day the Buchanness Lighthouse, which is situated at the south boundary of the Bay of Peterhead; 4,532 vessels passed Kinnaird Head Lighthouse, in the neighbourhood of Fraserburgh, distant about 18 miles from Peterhead; 3,249 vessels passed within the same period within sight of the Lighthouse on Dunculbin Head, at the north-east extremity of Scotland;



land; and a somewhat smaller, though still considerable, number of vessels was observed from the Noss Head Lighthouse (2,806), in the immediate vicinity of Wick. Further returns, also produced by Mr. Stevenson, show, that during the last six years 35 shipwrecks were reported within a limit of about 20 miles on either side of Peterhead, while 18 were reported within about the same distance from Wick.

"It appears in evidence that, on an average of the last three years, 643 vessels, amounting to 46,477 tons, resorted to the harbours of Peterhead. The number of vessels resorting to the harbour of Wick, on an average of the same period, amounted to 594, and their tonnage to 48,517, chiefly employed in the trade of the local fisheries during the summer and autumn months. It also appears in evidence, taking the same average of three years, that besides a large number of vessels which find shelter in the anchorage at present afforded by the South Bay of Peterhead during the summer months, 219 ships, of the tonnage of 13,364, find shelter in the harbours of Peterhead, chiefly in the winter months. And Peterhead is also much resorted to, as a place where ships from foreign ports call for orders, while it appears that the average number of ships which obtain shelter at Wick is only 30, their tonnage amounting to about 1,500.

"The want of a good harbour of refuge on the north-east coast of Scotland has been very strongly urged upon your Committee by all the witnesses who have given evidence upon the subject; and numerous petitions have been presented to the House by shipmasters and mariners frequenting the east coast of Scotland, and also by other public bodies, and by persons interested in shipping at many of the ports in Great Britain, which were remitted to your Committee, strongly urging the necessity for a refuge harbour on the east coast of Scotland, and pointing to Peterhead as the most fitting locality for such a harbour. Three places on this part of the coast have been pointed out in evidence as suitable for the erection of such a harbour, namely, Wick, Peterhead and Fraserburgh; and in considering the relative advantages of these localities, your Committee have kept in view, as has already been observed, the principle that a national harbour of refuge should not be constructed for the trade of any one particular port, but for the entire trade of the country, frequenting or passing particular parts of the coast, and as a rendezvous for ships of war. Captain Washington and Captain Vetch, of the Admiralty, and Captain Sullivan, of the Board of Trade, whose attention had been specially directed to Wick in 1857, pointed out to your Committee advantages which might be derived from the formation of a harbour of refuge at that place. And Captain Washington, in reporting on the state of the harbours in Scotland of 1847, pointed to Peterhead as an advantageous position for a deep water harbour of refuge. Mr. Stevenson, who is intimately acquainted with the whole coast, has had great experience in the construction of harbours, and has been employed in his professional capacity both at Wick and Peterhead, gives a decided preference to Peterhead as the site for a national harbour of refuge on the east coast of Scotland; while he admitted the importance of a smaller harbour at Wick, on account of its extensive and comparatively unprotected herring fisheries, which employ a considerable of persons during the fishing season. Colonel Moody, the commanding officer of the Royal Engineers in Scotland, who has examined the whole coast of that country with reference to national defences, under the instructions of the Fortification Department, is very decided in recommending the establishment of a large harbour of refuge and batteries at Peterhead, on account of its great strategical importance, and its facilities of communication by railway with the other naval depôts of the country. Captain Henderson, a naval officer of experience, who was for 12 years stationed on the North Sea, and who was practically acquainted with the dangers of this coast, gives a strong opinion in favour of Peterhead over any other place on the north-east coast; and Lieutenant Cerjat, of the Royal Navy, who has for some years been stationed on that coast, confirmed their testimony. Mr. Abernethy, civil engineer, gave evidence in favour of Fraserburgh, at which place he is of opinion that a small harbour of refuge might be constructed, which would furnish a sheltered area of 11 acres for vessels drawing 20 feet or upwards, and about 30 acres for vessels of a smaller draught.

"The impression conveyed to the minds of the Committee by the whole of the preceding evidence is in favour of Peterhead as the site for a national harbour of refuge, both in regard to its geographical position, as forming the easternmost promontory of the mainland of Scotland, as being midway betwixt the Forth and the Orkneys, and in regard to its other natural advantages. The Committee did not fail to recognise the importance of Wick as a fishing station, and the necessity for the improvement of its harbour for fishery purposes.

"The national harbour proposed by Mr. Stevenson at Peterhead would enclose a space of 200 acres at low-water, and 100 acres within the three-fathom line, and is estimated by him to cost 335,000*l.*, an expenditure which, considering the great advantages which your Committee expect to accrue from it both to the naval and commercial marine, they consider by no means excessive."

Question, "That the Draft Report proposed by the Chairman be read 2<sup>o</sup>, paragraph by paragraph," put, and agreed to.

Paragraphs 1, 2, 3, 4, and 5 read, amended and agreed to.

Paragraph 6 read. Amendment proposed, to leave out all the words after the words, "bold and dangerous character," to the end of the paragraph, for the purpose of inserting the following words:—"The Frith of Forth forms a safe refuge on the south, while the harbours of Longhope, Deersound, and Widewall, in the Orkneys, according to the evidence adduced before the Committee, are, 'very fine natural harbours,' and 'harbours of refuge themselves;' between the Orkneys and the Forth, therefore, there is a seaboard of upwards of 250 miles of coast totally unprovided with refuge.

"The traffic on this coast is very considerable: independent of the coasting trade, and that of the Orkney and Shetland Islands, there is a large number of vessels trading with the Baltic, Archangel, and other northern ports in Europe; there is likewise a large shipping trade betwixt the eastern ports of Scotland and America, while numerous ships are constantly plying from the east to the west coasts of Scotland and England, and also to Ireland. A very large trade has of late years risen up, and is still increasing, betwixt the Continental ports and Wick, Banff, Fraserburgh, Peterhead, and other places on the north-east coast of Scotland, in the export of herrings.

"The returns produced to the Committee by Mr. Stevenson, the engineer to the Northern Lighthouses, show, on an average of the last 10 years, that 7,763 vessels passed during the day the Buchanness Lighthouse, which is situated at the south boundary of the Bay of Peterhead; 4,532 vessels passed Kinnaird Head Lighthouse, in the neighbourhood of Fraserburgh, distant about 18 miles from Peterhead; 3,249 vessels passed within the same period within sight of the Lighthouse on Dunculbin Head, at the north-east extremity of Scotland; and a somewhat smaller, though still considerable, number of vessels was observed from the Noss Head Lighthouse (2,806), in the immediate vicinity of Wick. Further returns, also produced by Mr. Stevenson, show, that during the last six years 35 shipwrecks were reported within a limit of about 20 miles on either side of Peterhead, while 18 were reported within about the same distance from Wick.

"It appears in evidence that, on an average of the last three years, 643 vessels, amounting to 46,477 tons, resorted to the harbours of Peterhead; the number of vessels resorting to the harbour of Wick, on an average of the same period, amounted to 594, and their tonnage to 48,517, chiefly employed in the trade of the local fisheries during the summer and autumn months. It also appears in evidence, taking the same average of three years, that besides a large number of vessels which find shelter in the anchorage at present afforded by the South Bay of Peterhead during the summer months, 219 ships of the tonnage of 13,364, find shelter in the harbours of Peterhead, chiefly in the winter months. And Peterhead is also much resorted to, as a place where ships from foreign ports call for orders, while it appears that the average number of ships which obtain shelter at Wick is only 30, their tonnage amounting to about 1,500.

"The want of a good harbour of refuge on the north-east coast of Scotland has been very strongly urged upon your Committee by all the witnesses who have given evidence upon the subject; and numerous Petitions have been presented to The House by shipmasters and mariners frequenting the east coast of Scotland, and also by other public bodies, and by persons interested in shipping at many of the ports in Great Britain, which were remitted to your Committee, strongly urging the necessity for a refuge harbour on the east coast of Scotland, and pointing to Peterhead as the most fitting locality for such a harbour. Three places on this part of the coast have been pointed out in evidence as suitable for the erection of such a harbour; namely, Wick, Peterhead, and Fraserburgh; and in considering the relative advantages of these localities, your Committee have kept in view, as has already been observed, the principle that a national harbour of refuge should not be constructed for the trade of any one particular port, but for the entire trade of the country, frequenting or passing particular parts of the coast, and as a rendezvous for ships of war. Captain Washington and Captain Vetch, of the Admiralty, and Captain Sullivan, of the Board of Trade, whose attention had been specially directed to Wick in 1857, pointed out to your Committee advantages which might be derived from the formation of a harbour of refuge at that place. And Captain Washington, in reporting on the state of the harbours of Scotland in 1847, pointed to Peterhead as an advantageous position for a deep water harbour of refuge. Mr. Stevenson, who is intimately acquainted with the whole coast, has had great experience in the construction of harbours, and has been employed in his professional capacity both at Wick and Peterhead, gives a decided preference to Peterhead as the site for a national harbour of refuge on the east coast of Scotland; while he admitted the importance of a smaller harbour at Wick on account of its extensive and comparatively unprotected herring fisheries, which employ a considerable number of persons during the fishing season. Colonel Moody, the commanding officer of the Royal Engineers in Scotland, who has examined the whole coast of that country with reference to national defences under the instructions of the Fortification Department, is very decided in recommending the establishment of a large harbour of refuge and batteries at Peterhead, on account of its great strategical importance, and its facilities of communication by railway with the other naval depôts of the country. Captain Henderson, a naval officer of experience, who was for 12 years stationed on the North Sea, and who was practically acquainted with the dangers of this coast, gives a strong opinion in favour of Peterhead over any other place on the north-east coast; and Lieutenant Cerjat, of the Royal Navy, who has for some years been stationed on that coast, confirmed their testimony. Mr. Abernethy, civil engineer, gave evidence in favour of

Fraserburgh, at which place he is of opinion that a small harbour of refuge might be constructed which would furnish a sheltered area of 11 acres for vessels drawing 20 feet or upwards, and about 30 acres for vessels of a smaller draught.

The impression conveyed to the minds of the Committee by the whole of the preceding evidence is in favour of Peterhead as the site for a national harbour of refuge, both in regard to its geographical position, as forming the easternmost promontory of the mainland of Scotland, as being midway betwixt the Forth and the Orkneys, and in regard to its other natural advantages. The Committee did not fail to recognise the importance of Wick as a fishing station, and the necessity for the improvement of its harbour for fishery purposes.

"The national harbour proposed by Mr. Stevenson at Peterhead would enclose a space of 200 acres at low-water, and 100 acres within the three-fathom line, and is estimated by him to cost 335,000 £, an expenditure which, considering the great advantages which your Committee expect to accrue from it both to the naval and commercial marine, they consider by no means excessive."—(Sir *James Elphinstone*.)

Question put, "That the words proposed to be left out, down to the words 'passing to and fro through the Pentland Firth' inclusive, stand part of the paragraph." The Committee divided:

Ayes, 16.	Noes, 2.
Mr. Lowe.	Mr. Dodson.
Mr. Baring.	Sir James Elphinstone.
Lord Adolphus Vane Tempest.	
Mr. Kendall.	
Mr. Liddell.	
Sir Frederic Smith.	
Mr. Philips.	
Mr. Hassard.	
Sir Robert Ferguson.	
Mr. Gurney.	
Mr. Traill.	
Mr. Clay.	
Mr. Ewart.	
Mr. Macartney.	
Admiral Duncombe.	
Lord John Hay.	

Paragraph 6 proceeded with, and amended.

Further amendment proposed, after the word "Fraserburgh" to omit the words, "The majority of evidence is, however, in favour of Wick." (Sir *James Elphinstone*.)—Question put, "That those words stand part of the paragraph." The Committee divided:

Ayes, 11.	Noes, 6.
Mr. Baring.	Lord Adolphus Vane Tempest.
Mr. Kendall.	Mr. Philips.
Mr. Liddell.	Sir Robert Ferguson.
Sir Frederic Smith.	Mr. Dodson.
Mr. Hassard.	Mr. Ewart.
Mr. Gurney.	Sir James Elphinstone.
Mr. Traill.	
Mr. Clay.	
Mr. Macartney.	
Admiral Duncombe.	
Lord John Hay.	

Paragraph further proceeded with, amended, and agreed to.

Paragraphs 7 and 8 read, amended, and agreed to.

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[Adjourned to Wednesday next, at Eleven o'clock.]

*Mercurii, 16<sup>o</sup> die Junii, 1858.*

## MEMBERS PRESENT:

Mr. WILSON, in the Chair.

Admiral Duncombe.  
Mr. A. Smith.  
Sir James Elphinstone.  
Mr. Hassard.  
Mr. Philips.  
Sir Robert Ferguson.  
Sir Frederick Smith.  
Mr. Gurney.  
Mr. Ewart.  
Lord John Hay.

Mr. Baring.  
Mr. Fergus.  
Mr. Dodson.  
Mr. Liddell.  
Lord Adolphus Vane Tempest.  
Mr. Macartney.  
Mr. Traill.  
Mr. Lowe.  
Mr. Clay.

The Committee proceeded further to consider their Report.

Paragraph 9 read, amended, and agreed to.

Paragraph 10 read and amended.

Further amendment proposed, to omit the words, "An extension of the present harbour at St. Ives at a cost of 174,000*l.*, or if Padstow is adopted, at a cost not exceeding 35,000 *l.*," for the purpose of inserting the words: "The construction of a breakwater within St. Ives Bay, or some other point of the North-west coast of Cornwall." (Mr. A. Smith).—Question put, "That the words proposed to be left out stand part of the paragraph." The Committee divided:

Ayes, 15.

Mr. Lowe.  
Mr. Baring.  
Lord A. V. Tempest.  
Mr. Liddell.  
Sir Frederic Smith.  
Mr. Philips.  
Mr. Hassard.  
Mr. Gurney.  
Mr. Traill.  
Mr. Fergus.  
Mr. Dodson.  
Mr. Ewart.  
Mr. Macartney.  
Admiral Duncombe.  
Lord J. Hay.

Noes, 2.

Mr. Augustus Smith.  
Sir James Elphinstone.

Paragraph further amended, and agreed to.

Paragraph 11 read, amended, and agreed to.

Paragraph 12 read and amended.

Further amendment proposed, to leave out from the words "avoided by harbours of refuge," to the words "would have been all saved," inclusive. (Sir J. Elphinstone).—Question put, "that those words stand part of the paragraph." The Committee divided:

Ayes, 8.

Mr. Lowe.  
Mr. Liddell.  
Sir Frederic Smith.  
Mr. Traill.  
Mr. Fergus.  
Mr. Dodson.  
Mr. Ewart.  
Lord J. Hay.

Noes, 9.

Lord A. V. Tempest.  
Mr. Philips.  
Mr. Hassard.  
Mr. A. Smith.  
Sir R. Ferguson.  
Mr. Gurney.  
Mr. Macartney.  
Admiral Duncombe.  
Sir James Elphinstone.

Paragraph further amended, and agreed to.

Paragraph 13 read and amended.

Further amendment proposed, after the words "not equally apply to the other" to leave out all the words down to the words, "the amount paid for insurance," inclusive. (Lord A. V. Tempest.)—Question put, "That those words stand part of the paragraph." The Committee divided :

Ayes, 11.  
Mr. Lowe.  
Mr. Baring.  
Sir Frederic Smith.  
Mr. Philips.  
Mr. Hassard.  
Mr. Traill.  
Mr. Fergus.  
Mr. Dodson.  
Mr. Ewart.  
Mr. Macartney.  
Lord J. Hay.

Noes, 8.  
Lord A. V. Tempest.  
Mr. Liddell.  
Mr. A. Smith.  
Sir Robert Ferguson.  
Mr. Gurney.  
Mr. Clay.  
Admiral Duncombe.  
Sir James Elphinstone.

Paragraph further amended.

Further amendment proposed, after the words "From the Consolidated Fund" to leave out all the words down to the words "indefinite period of time," inclusive. (Mr. Liddell.)—Question put, "That those words stand part of the paragraph." The Committee divided :

Ayes, 13.  
Mr. Lowe.  
Mr. Baring.  
Lord A. V. Tempest.  
Sir F. Smith.  
Mr. Philips.  
Mr. Hassard.  
Mr. Gurney.  
Mr. Traill.  
Mr. Fergus.  
Mr. Dodson.  
Mr. Ewart.  
Admiral Duncombe.  
Lord J. Hay.

Noes, 6.  
Mr. Liddell.  
Mr. A. Smith.  
Sir R. Ferguson.  
Mr. Clay.  
Mr. Macartney.  
Sir J. Elphinstone.

Further amendment proposed, after the words "indefinite period of time," to add the following words, "But considering the great saving that will accrue to national wealth, as shown in paragraph 12, Your Committee are of opinion that a considerable proportion of the money necessary to construct the works should be contributed from the public Exchequer." (Lord A. V. Tempest.)

Question put, "That those words be there added?" The Committee divided.

Ayes, 11.  
Mr. Lowe.  
Mr. Baring.  
Lord A. V. Tempest.  
Mr. Liddell.  
Mr. Hassard.  
Mr. Gurney.  
Mr. Dodson.  
Mr. Clay.  
Mr. Ewart.  
Admiral Duncombe.  
Lord J. Hay.

Noes, 8.  
Sir F. Smith.  
Mr. Philips.  
Mr. A. Smith.  
Sir R. Ferguson.  
Mr. Traill.  
Mr. Fergus.  
Mr. Macartney.  
Sir J. Elphinstone.

Question put, "That paragraph 13, as amended, stand part of the Report?" The Committee divided.

Ayes, 13.  
Mr. Lowe.  
Mr. Baring.  
Lord A. V. Tempest.  
Mr. Liddell.  
Sir F. Smith.  
Mr. Philips.  
Mr. Hassard.  
Mr. Traill.  
Mr. Fergus.  
Mr. Dodson.  
Mr. Ewart.  
Mr. Macartney.  
Lord J. Hay.

Noes, 6.  
Mr. A. Smith.  
Sir R. Ferguson.  
Mr. Gurney.  
Mr. Clay.  
Admiral Duncombe.  
Sir J. Elphinstone.

Paragraph 14 read, and amended.

Further amendment proposed, after the words "which enter them," to insert the words, "And your Committee are of opinion that they are not justified by any evidence they have received on the subject, or by any consideration of public policy, in recommending the imposition of a passing toll upon vessels frequenting our coasts for the construction and maintenance of refuge harbours." (*Mr. Liddell.*)

Question put, "That those words be there inserted?" The Committee divided.

Ayes, 5.

Mr. Liddell.  
Mr. A. Smith.  
Sir R. Ferguson.  
Mr. Clay.  
Sir J. Elphinstone.

Noes, 13.

Mr. Lowe.  
Mr. Baring.  
Lord A. V. Tempest.  
Sir F. Smith.  
Mr. Philips.  
Mr. Hassard.  
Mr. Gurney.  
Mr. Traill.  
Mr. Fergus.  
Mr. Dodson.  
Mr. Ewart.  
Admiral Duncombe.  
Lord J. Hay.

Paragraph further amended.

Further amendment proposed, after the words "in their course is," to omit the words, "The only true one." (*Mr. Dodson.*)—Question put, "That those words stand part of the paragraph." The Committee divided :

Ayes, 3.

Mr. Lowe.  
Sir F. Smith.  
Mr. Philips.

Noes, 12.

Mr. Baring.  
Lord A. V. Tempest.  
Mr. Liddell.  
Mr. Hassard.  
Mr. H. Smith.  
Sir R. Ferguson.  
Mr. Gurney.  
Mr. Dodson.  
Mr. Clay.  
Mr. Ewart.  
Admiral Duncombe.  
Sir J. Elphinstone.

Paragraph further amended, and agreed to.

Paragraph 15, read. Amendment proposed, after the words "Your Committee," at beginning of the paragraph, to omit all the words down to the words "pay for it," at the end of the paragraph. (*Lord A. V. Tempest.*)—Question put, "That those words stand part of the paragraph." The Committee divided :

Ayes, 9.

Mr. Lowe.  
Mr. Baring.  
Sir F. Smith.  
Mr. Philips.  
Mr. Hassard.  
Mr. Gurney.  
Mr. Dodson.  
Mr. Ewart.  
Lord J. Hay.

Noes, 6.

Lord A. V. Tempest.  
Mr. Liddell.  
Mr. A. Smith.  
Sir R. Ferguson.  
Mr. Clay.  
Admiral Duncombe.

Paragraph agreed to.

Paragraph 16 and 17, read, amended, and agreed to.

Paragraph 18, read, and amended,

Further amendment proposed, to leave out the words "the Commission," for the purpose of inserting the words, "Her Majesty's Government" instead thereof. (*Mr. Baring.*)—

Question put, "That the words proposed to be left out stand part of the paragraph."  
The Committee divided :

Ayes, 7.  
Mr. Lowe.  
Lord A. V. Tempest.  
Mr. Liddell.  
Sir R. Ferguson.  
Mr. Dodson.  
Admiral Duncombe.  
Lord J. Hay.

Noes, 9.  
Mr. Baring.  
Sir F. Smith.  
Mr. Philips.  
Mr. Hassard.  
Mr. A. Smith.  
Mr. Gurney.  
Mr. Clay.  
Mr. Ewart.  
Mr. Macartney.

Words inserted. Paragraph further amended, and agreed to.

Paragraphs 19 and 20 read, amended, and agreed to.

Paragraph 21, read, and amended.

Further amendment proposed, after the words "on the south coast," to insert the word "on which the loss of life has been stated in evidence to be most serious." (Mr. *Dodson*).—  
Question put, "that those words be there inserted." The Committee divided :

Ayes, 2.  
Mr. Gurney.  
Mr. Dodson.

Noes, 13.  
Mr. Lowe.  
Mr. Baring.  
Lord A. V. Tempest.  
Mr. Liddell.  
Sir F. Smith.  
Mr. Philips.  
Mr. Hassard.  
Mr. A. Smith.  
Sir R. Ferguson.  
Mr. Clay.  
Mr. Ewart.  
Admiral Duncombe.  
Lord J. Hay.

Paragraph agreed to.

Paragraph 22 read, amended, and agreed to.

Question, "That this be the Report to The House ;" put, and agreed to.

*Ordered*, to Report:

Motion made, and Question proposed, "That the Chairman be requested to call the attention of The House to this Report at as early a period of the present Session as circumstances will admit" (Mr. *Liddell*), put, and agreed to.

EXPENSES OF WITNESSES.

N A M E of W I T N E S S.	Profession or Condition.	From whence Summoned.	Number of Days absent from Home, under Orders of Committee.	Expenses of Journey to London and back.	Allowance during Absence from Home.	TOTAL Expenses allowed to Witness.
				£. s. d.	£. s. d.	£. s. d.
Mr. David Stevenson -	Civil Engineer -	Edinburgh - -	3	9 - -	9 9 -	18 9 -
Mr. Charles Thomas Cerjat	Lieutenant, R.N. -	Edinburgh - -	3	9 - -	3 3 -	12 3 -
Mr. John Coode - -	Civil Engineer -	Weymouth - -	3	3 10 -	9 9 -	12 19 -
Mr. Mark Clarke - -	Master Mariner -	Filey, Yorkshire -	3	5 - -	3 3 -	8 3 -
Mr. Thomas Forward -	Master of Sylvia Revenue Cutter.	Plymouth - -	3	5 - -	3 3 -	8 3 -
Captain Sampson - -	Master Mariner -	Bristol - -	3	3 3 -	3 3 -	6 6 -
Mr. J. D. Bryant - -	Receiver of Wrecks	Padstow - -	5	9 7	5 5 -	14 12 -
Mr. Thomas Robert Winder	Civil Engineer to Royal Harbour Commission.	Dover - -	2	1 16 -	2 2 -	3 18 -
Captain Sheringham -	Royal Navy.	Paignton - -	3	5 15 -	3 3 -	8 18 -
Sir James Dombrain	Late Inspector, Go- vernment Coast Guard.	Dublin - -	3	6 10 -	3 3 -	9 13 -
Mr. Barry Gibbons -	Civil Engineer -	Dublin - -	3	6 10 -	9 9 -	15 19 -
Captain M'Kellar - -	Merchant Service -	Glasgow - -	3	10 - -	3 3 -	13 3 -
Captain Cumming - -	Merchant Service -	Glasgow - -	3	10 - -	3 3 -	13 3 -
Captain Edward Best -	Merchant Service -	Hull - -	3	2 15 -	3 3 -	5 18 -
Captain Thompson - -	Merchant Service -	Liverpool - -	3	4 10 -	3 3 -	7 13 -
Captain Hamilton - -	Merchant Service -	Liverpool - -	3	4 10 -	3 3 -	7 13 -
Captain George Bowen -	Merchant Service -	Cardigan - -	3	6 6 -	3 3 -	9 9 -
Captain David James -	Merchant Service .	Cardigan - -	3	6 6 -	3 3 -	9 9 -
Captain John Harries -	Receiver of Wrecks	Newport - -	3	6 15 -	3 3 -	9 18 -
Captain John Drew - -	Trinity House -	Bristol - -	3	3 5 -	3 3 -	6 8 -
Captain Williams - -	Merchant Service -	Liverpool - -	3	2 - -	3 3 -	5 3 -
				TOTAL -	- - £.	207 - -



## LIST OF WITNESSES.

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Colonel Richard Clement Moody, R.E.	-	-	p. 26
Lieutenant Charles Thomas Cerjat	-	-	p. 28

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Rear-Admiral Sir James Clark Ross	-	-	p. 29
John Coode, Esq., C.E., F.G.S.	-	-	p. 39
Mr. Mark Clark	-	-	p. 51
Mr. Henry Coston	-	-	p. 57

*Jovis, 18° die Martii, 1858.*

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Mr. Thomas Roundell Forward	-	-	p. 73
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Captain Christopher Claxton, R.N.	-	-	p. 87
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Mr. Edward Best	-	-	p. 149
Mr. Joseph Thompson	-	-	p. 154
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*Jovis, 15° die Aprilis, 1858.*

Sir Samuel Morton Peto, Bart.	-	-	p. 167
Mr. David James	-	-	p. 174
Mr. George Bowen	-	-	p. 177
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*Lunæ, 19° die Aprilis, 1858.*

Captain John Drew	-	-	p. 183
Mr. Robert Gething	-	-	p. 188
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Captain James Vetch, R.E.	-	-	p. 202
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# MINUTES OF EVIDENCE.

*Jovis, 25<sup>o</sup> die Februarii, 1858.*

## MEMBERS PRESENT:

Mr. Clay.  
Mr. Dodson.  
Mr. Grant Duff.  
Admiral Duncan.  
Sir James Elphinstone.  
Mr. Joseph Ewart.  
Mr. Fergus.  
Mr. Hassard.

Mr. Kendall.  
Mr. Liddell.  
Mr. Philips.  
Mr. Augustus Smith.  
Sir Frederick Smith.  
Mr. Traill.  
Mr. Wilson.

JAMES WILSON, Esq., IN THE CHAIR.

*David Stevenson, Esq., called in ; and Examined.*

1. *Chairman.*] WHAT are you by profession ?—A Civil Engineer.
2. Have you had much experience in constructing harbours ?—I have.
3. In what part of the country has your practice been ?—In Scotland and England, and also in Ireland.
4. Are you well acquainted with the east coast of Scotland ?—I am.
5. You have been engaged in constructing and repairing several harbours upon that coast ?—I have.
6. Are you well acquainted with the northern part of the east coast of Scotland ?—I am very well acquainted with it.
7. You know the neighbourhood of Wick ?—I do.
8. And Peterhead ?—Yes.
9. What part of the north coast of Scotland do you regard as being the most important for shipping, including the merchant shipping and the herring fishing ?—For the herring fishing there is no doubt that the coast of Caithness is by far the most important ; and there cannot be a doubt that the herring fishing upon that coast is at present very much unprotected, and ought to have shelter.
10. What is the port to which most of those fishing-boats resort ?—Wick.
11. Are you aware of the number of boats that frequent that port in a season ?—About from 1,200 to 1,400.
12. The trade of Wick is not confined to boats belonging to the port of Wick, is it ?—No ; boats come from all parts of the country to fish during the season.
13. From all parts of Scotland ?—Yes.
14. And even from England and Ireland ?—I am not aware of that from my own knowledge.
15. Are you aware that boats go from Cornwall to that part of Scotland ?—Not from my own knowledge.
16. Considering the character of the trade of that part of the coast, is it your opinion, as far as you have the means of knowing, that the passing merchant trade, or the local coasting and fishing trade is the most important ?—The fishing trade I should say.
17. You would say that the fishing trade is much more important than the merchant trade ?—That is my opinion.

0.36.

A

18. For

*David Stevenson,  
Esq.*

25 February 1858.

David Stevenson,  
Esq.

25 February 1858.

18. For the fishing trade, which is in your opinion the best harbour of refuge in the event of bad weather?—There is no harbour of refuge upon that coast at present at all for the fishing trade.

19. What is the best spot for the construction of a harbour of refuge upon that coast in your opinion for the fishing trade?—Wick, without doubt.

20. Is there any other place upon the coast which, having reference to its importance as a fishing station, you would suggest as being worthy of consideration in comparison with that?—No, I cannot say there is upon that coast; Wick is decidedly the best situation.

21. Is it the case that a very large loss of life is incurred in consequence of fishing boats on that coast having no harbour to run to?—Such loss has occurred upon several occasions.

22. A very great loss within the present year, was there not?—Yes, there was a loss in the present year in Wick Bay.

23. Is there any other part of that coast where you consider so much loss of life has taken place from shipwreck in boats as in the vicinity of the harbour of Wick?—I do not know any other part of the coast where greater loss has taken place to fishing-boats than the Caithness coast. There was some years ago a very great loss of boats at Peterhead, and all along the coast; and this year, indeed, there was a very great loss in the Moray Firth, in fishing-boats.

24. Did those boats belong to Peterhead, or did they belong to Wick?—They belonged to neither place; they were fishing-boats belonging to the Moray Firth.

25. When you say that great loss took place at Peterhead, do you mean by that, that the boats were lost in making for the harbour of Peterhead, or that they were lost in the vicinity of Peterhead?—They were lost in running for the harbour of Peterhead.

26. Would those boats have been able to run to the harbour of refuge at Wick had there been any?—No, certainly not.

27. The wind was in another direction?—No; but it is so far distant that these boats could not have made it.

28. Those boats were fishing at the time in the vicinity of Peterhead?—They were.

29. But taking the proportion of fishing, by far the larger proportion is always in the neighbourhood of Wick, I understand you to say?—That is my opinion.

30. Is fishing, as a regular trade in Peterhead, extensive?—It is.

31. What proportion do you think it bears to the fishing of Wick?—It is not nearly so extensive; I should say about 400 boats, or something like that, fish from Peterhead.

32. Against about 1,400 at Wick?—Yes; and, in addition to the 1,400, there are other boats at other places on the Caithness coast, all of which are equally of course without protection.

33. With reference to merchant vessels coming from the Baltic, going north-about round to the west coast of Scotland, what part of the coast, in your opinion, would be the most convenient place for a harbour of refuge in the event of those vessels being caught in a storm?—That depends very much upon where the storm catches them. If they are going through the Pentland Firth, and find they cannot get through it, and also fail in making any of the harbours in the Orkneys, then a harbour at Wick would be of great importance for vessels so caught.

34. Is it not the case that the most severe storms and the heaviest seas are in the Pentland Firth upon that passage?—In the Pentland Firth the seas are very heavy; there is no doubt about that whatever; but it depends entirely upon the state of the tide and wind. The water at times in Pentland Firth is perfectly smooth.

35. Is it not the case that in bad weather the strong currents in the Pentland Firth render that navigation more difficult and dangerous than any other part of the passage from the Baltic?—Yes; with a flood tide and an east wind no vessel at times can take Pentland Firth.

36. That is the most dangerous point, you think, in the voyage, from the Baltic round to the west coast of England?—Yes, that is my belief.

37. And the best place for a harbour for those vessels is Wick?—That depends upon whether they have to run across the Pentland Firth; if they are to the north, then there are natural harbours of shelter in the Orkney Islands.

38. Then if they are sufficiently far advanced in their voyage, and if the wind is favourable, they may take a harbour in some of the Orkney Islands?—Yes.

39. But

39. But if they are not sufficiently advanced to do that, Wick would be the most convenient place for them to make if there were a harbour there, would it not?—Yes, it would be more convenient than the Orkneys.

David Stevenson,  
Esq.

26 February 1858.

40. Will you state to the Committee, what, in your opinion, would be the peculiar advantages which Peterhead would offer as a harbour of refuge?—The advantages of Peterhead, as a harbour of refuge, are its position on a very dangerous coast between the Friths of Forth and Cromarty, which is at present wholly unprovided with harbour accommodation. The amount of merchant traffic passing that coast is also very large.

41. Is the amount larger than passes Wick?—Yes, much larger.

42. What class of traffic would be indicated in the one, that would not be in the other?—A large trade going from the south to Archangel, passes Peterhead, and many vessels to and from the Baltic, I have reason to believe, make it, and that trade either does not pass Wick at all, or passes at a distance.

43. That is, you mean it does not pass so near?—It does not.

44. Still that trade would pass both places?—The Archangel trade must necessarily pass both places; but the one they go very near to, in fact, they see the land; while the other they pass at a distance.

45. Will you state to the Committee from what part a gale would be blowing that would cause a vessel to take the harbour at Peterhead, if she were going to Archangel?—It is known as a fact, that vessels, when abreast of Peterhead, or just before they got to Peterhead, have been taken with a north-east gale, and have returned repeatedly to the Firth of Forth for shelter; the consequence was, that such vessels had to make a dangerous coasting voyage of upwards of 100 miles to the Firth of Forth at a great risk to their owner, and then they had again to make a voyage of 100 miles to be at the spot from whence they ran back.

46. If a vessel going to Archangel were to encounter a north-east gale south of Peterhead, she would not be able to make that harbour?—Certainly not, if it was sufficiently severe and she were far to the south; but if it was at the beginning of the gale she might make it.

47. A vessel would not be able to reach Peterhead at all, if she were south of Peterhead, would she?—If she was a little south of Peterhead in such weather, she might manage to get there, and take refuge there.

48. Peterhead is the north-easterly promontory of that part of Scotland?—It is.

49. And a north-easterly gale encountering a vessel going to Archangel would be what you call a direct head wind, would it not?—It would, or nearly so.

50. Then how can you make out, that if a vessel encounters a severe gale, going in a north-easterly direction, being south of Peterhead, she could make for the harbour of Peterhead?—My statement was, that in the event of being to the south of Peterhead, and a gale arising, she might make Peterhead, and put into Peterhead before the strength of the gale arrived, and then lie there until it was over.

51. Then you assume that she reaches Peterhead before the gale acquires its full power?—Before it acquires its maximum power; but if a vessel is far south of Peterhead, she must go back.

52. If she is far south of Peterhead at the height of the gale, when she is really in danger, she must go back?—Just so.

53. Suppose that the same vessel were to encounter that severe gale considerably to the north of Peterhead, would she not be able to go into the Bay of Cromarty?—Yes, provided she had sufficient offing from the Morayshire coast.

54. And take shelter in the Bay of Cromarty?—She might.

55. Therefore, if a vessel going to Archangel were to encounter an extremely heavy gale, considerably south of Peterhead, she would have to return to the Firth of Forth; and if she encountered a gale to the north of Peterhead, she might take refuge in the Bay of Cromarty?—Yes; but no vessel would run into the Firth of Cromarty, if she could possibly help it, and she could only go there under certain circumstances.

56. No vessel would return to the Firth of Forth, except under a great stress of weather?—Certainly not.

57. Harbours of refuge are made for the express purpose of meeting those extreme cases, are they not?—Yes; and of preventing vessels from being under the necessity of making such voyages as those to which I have alluded, running 100 miles back to the Firth of Forth, or into the Firth of Cromarty.

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58. Supposing

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58. Supposing a vessel being south of Peterhead, going to Archangel, were to encounter a very heavy south-easterly gale, what would be the best point of the coast for her to make in that case?—There is no place of refuge at present on the coast for a vessel under such circumstances.

59. Would a harbour at Wick be available as a refuge for a vessel in the event of her being at sea, south of Peterhead, with an extremely heavy south-easterly gale?—It would be available, but of course a harbour at Peterhead would be still more available.

60. Would it not be difficult to round the corner of land, and to take the harbour of Peterhead, if you had an extremely heavy south-easterly gale, in the case of a vessel going north?—I do not think there would be any difficulty.

61. Is not Peterhead round a corner of the coast?—No; it is just on the southern point of the headland; if you refer to the map it will be seen.

62. Then a vessel encountering a south-easterly gale, going in a northerly direction, might take the harbour at Peterhead?—Yes.

63. Such a vessel, however, if considerably out at sea, might also take a harbour at Wick?—She might.

64. And therefore, in that case, either harbour would be available for a vessel in that dilemma?—Yes, provided she was off shore enough.

65. But a vessel going from any part of England to Archangel, of course would be a great distance from the land in any case?—No; they generally make Peterhead in passing; they come very near to Peterhead.

66. In going to Archangel?—Yes.

67. Is that on the direct line to Archangel?—It is considered a convenient point of departure.

68. In your opinion as an engineer, is the physical formation of the coast as well adapted for a harbour of refuge at Peterhead as it is at Wick?—It is quite as well adapted for a harbour upon a large scale, but not for a harbour upon a small scale.

69. For a very extensive harbour?—Yes.

70. Is not Wick better protected by the conformation of the coast in the neighbourhood than Peterhead?—No; the bay of Peterhead is fully as well protected as the bay of Wick, rather better I should say if anything.

71. You think that a harbour at Peterhead would in all times of difficult weather be as easily taken as a harbour at Wick?—I think it would decidedly.

72. You say that there is a large trade to the north of Europe passing Peterhead; what proportion of trade is there that goes through the Pentland Firth?—I cannot answer that question very exactly; but if the Committee will allow me I can read to them a return taken for the last 10 years from the different lighthouse stations upon the coast, of vessels passing those stations during the day, including the Pentland Skerries and Dunnethead, which are both in the Pentland Firth, from which the Committee may judge of the relative proportion which passes the one place and the other.

[The Witness delivered in the same, which is as follows:]

TABLE of the NUMBER of VESSELS observed passing the following Lighthouses during the day, yearly.

	1850.	1851.	1852.	1853.	1854.	1855.	1856.	Averages
Bell Rock - -	12,267	9,988	10,095	11,361	11,169	10,206	9,022	10,587
Buchan Ness - -	10,186	9,310	8,885	7,412	8,054	5,225	5,274	7,763
Kinnairdhead - -	4,789	4,692	4,752	4,980	4,816	3,961	3,784	4,532
Covesea - -	3,967	3,398	3,060	3,091	2,456	2,852	3,415	3,177
Tarbetness - -	1,830	1,936	1,522	1,749	1,642	1,878	2,567	1,876
Nosshead - -	3,232	3,640	3,252	2,641	2,213	2,396	2,268	2,806
Pentland Skerries	2,714	2,795	2,769	3,555	3,904	2,788	3,263	3,113
Dunnethead - -	2,498	3,537	3,763	3,851	2,840	2,698	3,533	3,249

73. Will you state to the Committee what peculiar advantages you consider would apply to a harbour of refuge at Peterhead?—The advantages which would arise from a harbour of refuge at Peterhead would apply to the whole coasting trade on the east of Scotland.

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74. But what are the peculiar advantages of Peterhead as compared with any other spot in that locality?—Peterhead is the best spot between the Firth of Forth and the Firth of Cromarty where such a harbour can be made; it lies half-way between those two points, and is of a sufficient size for a very large fleet of vessels; it is a place where a number of vessels could take shelter, and it is a point where, at the present time, many vessels do take shelter. Under these circumstances, I can see no place between the points I have named which has any advantages at all to be compared with Peterhead.

75. But you confine yourself now to vessels passing from the Firth of Forth to the Firth of Cromarty?—I take in the whole of the vessels passing that part of the coast, whether they are going to the Firth of Cromarty or going to Archangel, or going to the north through Pentland Firth. I take the whole traffic of the coast. When I state that the traffic is great, I include the whole of that traffic.

76. When you say that you include the whole of that, I thought you told us just now that Wick had great advantages as a harbour of refuge for vessels going those voyages?—For vessels going through Pentland Firth there is no doubt of it whatever; but the harbour of Wick would be almost of no use, or of very little use to the part of the coast to which I am alluding, between the Firth of Cromarty and the Firth of Forth.

77. Then your observations are confined to vessels passing from the Firth of Forth to the Firth of Cromarty?—Not so; for in point of fact there is not very much traffic from the Firth of Forth to the Firth of Cromarty.

78. You have stated that the only point where a harbour of refuge can be made upon the coast from the Firth of Forth to the Firth of Cromarty is at Peterhead, if I understand you?—Just so.

79. When you say that it is the only point, you refer only to the distance between the Firth of Forth and the Firth of Cromarty?—Yes.

80. The moment you extend the line from the Firth of Forth to Pentland Firth, then you say that Wick is a good point for a harbour?—Just so; in fact the only two good places are Wick and Peterhead on the north-east coast of Scotland.

81. Am I to understand you that the trade between the Firth of Forth and the Firth of Cromarty alone is very trifling?—I think it is, as compared with the general traffic of the coast, which is much greater at Peterhead than at the Pentland Firth.

82. The trade of the coast only becomes extensive when you extend it to Pentland Firth and to Archangel?—Yes; my reason for stating that the trade at Pentland Firth is smaller is, that it appears that the number of vessels passing Pentland Skerries is only 3,113, whereas the number passing Buchan Ness, is 7,763 per annum during the day.

83. In the case of vessels returning from Archangel, if they were to encounter the same gale which you have already been considering, the north-easterly gale, those vessels would be able to make either for the Harbour of Wick or for the Moray Firth, or for Peterhead, if there were a harbour?—Yes.

84. Then three harbours would be open to a vessel in that case meeting with a strong north-easterly wind coming home?—Yes; but Wick and Cromarty are out of their course.

85. Are you well acquainted with the locality both of Wick and Peterhead?—Yes.

86. In your opinion, at which of those two places, from its local position and natural physical conformation, would a harbour of refuge be most easily and least expensively made?—If you take a harbour of equal area at either place, the difference of construction would be rather in favour of Wick, but not materially.

87. Which place would present the greatest facility of obtaining cheap and abundant material?—They both present very great facilities. At Peterhead you have the finest granite, and at Wick you have another splendid material in the slate.

88. Granite is very difficult and expensive to work, is it not?—It is expensive to dress; but for the purpose of making a breakwater, it happens to be exceedingly

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ingly well adapted. You only require the rough stone for the under waterwork, and for that it is better suited than the flat stone.

89. In both cases you would have to quarry it?—In both cases you would have to quarry it.

90. The quarrying of granite is infinitely more expensive and more difficult than the quarrying of the stone which they have at Wick, is it not?—Not if you quarry it in large quantities. The great thing in quarrying such stone, for such a purpose, is to get it with a sufficiently high face to work upon, and if you get it with a high face, you work it much more cheaply than if the face is low; as for instance, at Holyhead, where they have a high face, they work with great advantage. Such a face we could get at Peterhead; it would not be so high a face at Wick, but there is no difficulty whatever either in the one case or the other as to material.

91. Taking a harbour of the same size, which do you suppose, speaking as a professional engineer, well acquainted with this subject, would cost the greatest sum of money in the whole, taking material and labour altogether?—That harbour which I have put upon that plan for Peterhead incloses an area of about 200 acres, and the cost of it would be 335,000 £. Mr. Rendel's estimate for Wick, inclosing the bay there, I think was about 250,000 £. or 260,000 £, if I mistake not.

92. What is the area which you inclose at Peterhead?—Two hundred acres at low water, and 100 acres within the three fathom line.

93. What is the area of the harbour which Mr. Rendell proposed at Wick?—The area of the whole bay at Wick is 210 acres.

94. This harbour at Peterhead would not be applicable at all to the fishing-boats at Wick?—Not in the least; it would be of no use whatever for these fishings.

95. It would only be, so far as the fishing trade is concerned, applicable to the boats which frequent the Peterhead station?—Yes, and the adjoining coasts, so far as fishing is concerned.

96. Sir James Elphinstone.] Your opinion, as respects Wick, applies to it entirely as a fishing station, does not it?—There can be no doubt that the fishing gives to Wick its great importance.

97. Have you any knowledge of the annual number of vessels bound through the Pentland Firth to ports to the westward that take refuge in Peterhead and Wick?—The number of vessels which take refuge in Peterhead is somewhere on an average about 200 a year, exclusive of those which take refuge in the bay; but I state that, not from my own knowledge, but from returns made by Mr. Boyd, the clerk to the harbour trustees.

98. But you have no knowledge of the number of vessels that take refuge in Wick?—I have not personally; Mr. Boyd's returns state them at 30 annually.

99. Are you aware that vessels go to Wick to attend upon the fishing trade, to purchase herrings there?—I am.

100. A harbour at Wick would of course be available for them as well as for the fishing-vessels?—It would.

101. Do you think, for the general trade, for vessels bound to the westward through the Pentland Firth, that Wick would be of any value at all as a harbour of refuge?—There can be no doubt Wick would, in certain circumstances, be of great value to vessels passing from the eastward to the westward through the Pentland Firth.

102. Will you state the circumstances under which you think it would be so?—With a flood-tide and a strong south-east wind the Pentland Firth could not be passed, and in those circumstances a vessel which could not make the Orkneys could take refuge in a harbour at Wick unquestionably, and wait there until the state of the tide and wind enabled her to pass through the Pentland Firth.

103. Which way does the flood-tide run?—From west to east.

104. Then they must wait for a wind with the tide, and not against it, under those circumstances?—Yes; at least they must wait for moderate weather.

105. Do vessels ever attempt to work through the Pentland Firth during a storm from the westward?—I think not.

106. With a wind from the westward, supposing a vessel to be caught at the eastern entrance of the firth, would she most naturally run to the harbour of Wick instead of the harbours in the Orkneys?—She would most naturally run to the harbours of the Orkneys.

107. Supposing

107. Supposing a vessel bound to Archangel, in the latitude of the Firth of Forth, 56° north, and in longitude 2° east, would she not be able, at the beginning of a north-east wind, to fetch Peterhead?—I have no chart before me, but perhaps that is more a nautical than an engineering question.

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108. Have you any knowledge of vessels running up the Cromarty Firth under these circumstances to take refuge in Cromarty?—I know, as a fact, that vessels do take refuge in Cromarty Firth, but under what particular circumstances I am not prepared to say, whether they come from the north or the south.

109. Are you not aware that, in nine cases out of ten, the wind is different at Cromarty to what it is outside?—I have heard it often stated, and I have seen one instance of it myself; so that vessels coming from the south, after getting into the Moray Firth, very often find the wind against them.

110. A vessel, after having run 60 or 70 miles to leeward, finds the wind blowing through the great valley of the Caledonian Canal, which puts her between two points, and she can neither get one way nor the other?—Yes; there is a prevailing westerly wind there.

111. Irrespective of the north-east wind outside?—Yes. I state that, not from my own observation as residing upon the spot, but I state it as a fact which has repeatedly been proved.

112. As a meteorological fact which has come to your knowledge?—Yes.

113. Did you ever know a man run to Cromarty, if he could help it?—Certainly not; the Moray Firth is a very bad place to get out of.

114. If there was a harbour of refuge at Wick, and none at Peterhead, would a vessel, with a good offing, caught in a north-east wind, run for Wick, in preference to the Firth of Forth, supposing she had got to the latitude of Peterhead, and was bound north to Archangel or to the Baltic?—She would naturally run to the Firth of Forth under such circumstances, I should say.

115. Supposing a ship, in the position you have mentioned, failed in getting into Peterhead with a north-east gale, would she not still have the Firth of Forth under her lee?—She would.

116. Supposing she was to run for Wick, and found herself in difficulty off the port, would she have anything under her lee there?—Nothing but the Cromarty Firth.

117. What harbours are there in the Orkneys, for vessels caught in a westerly gale at the entrance of the Pentland Firth?—The harbours in Orkney are very fine indeed. There is Long Hope, Deer Sound, Widewall, Stromness and some others. They are all very fine natural harbours.

118. Supposing the wind came round to the north-east, blowing hard through Pentland Firth, could she work out of those or run through the islands so as to gain the other side?—If she was in Stromness or Widewall she could come out under those circumstances. If she was in Deer Sound, or Long Hope, with the wind strong from the north-east, she could not get out.

119. Suppose she was in Wick under those circumstances?—She could not get out.

120. Suppose a ship takes shelter in Wick from a westerly wind, and the wind flies round to the north-east, can she get out of Wick?—No, certainly not.

121. Suppose she was caught there?—She must remain till a change takes place.

122. Is it not often the case in that part of Scotland that the wind shops round from the south-west to the north-east very rapidly?—The wind often changes very rapidly.

123. At all seasons of the year?—I think it is principally in spring and autumn, but it is an occurrence which frequently happens.

124. Have not all those catastrophes which have involved such lamentable loss of life occurred from the wind flying round from the south-west to the north-east very suddenly?—Very much so.

125. Under those circumstances do you consider that a harbour at Wick for fishing-vessels is essentially necessary?—I think so decidedly.

126. And for vessels attending upon the fishing-vessels, such as the Dutch and French luggers, and vessels that come over to purchase fish?—Yes, of very great importance.

127. But for the general trade of the kingdom, you do not consider that Wick is a good position for a harbour of refuge?—No; for the general trade of the kingdom, looking at the amount of traffic and at the position of Peterhead,



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I think its claims as a general harbour of refuge are in that respect much higher than those of Wick.

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128. Has not Peterhead two entrances?—It has.

129. Supposing this breakwater was to be constructed, what area of space have you got there of about three fathoms water?—One hundred acres.

130. And how much have you above five fathoms?—I have not calculated that. There are seven fathoms at the pierheads. I do not know exactly the acreage of the five fathoms.

131. Suppose that harbour was constructed, and a fleet of 10 sail of the line bound to the Baltic were caught in a north-east gale, could they take refuge in Peterhead if those works were carried out?—That is a question which I think I am hardly competent to answer; I have no doubt about it as a harbour for the mercantile marine.

132. Are you aware that a railway is about to be constructed to Peterhead?—So I believe.

133. That line is to run to the harbour of Peterhead, is it not?—It is.

134. In the event of one of those ships, or any ship, going into Peterhead with her machinery damaged, are there not works at Aberdeen at which she could get the largest portions of her machinery repaired or renewed?—Yes, there are very large works, and there are also good works at Peterhead.

135. Would there not, under those circumstances, be a railway communication from the harbour of Peterhead to within a few yards of those foundries at Aberdeen?—There would.

136. Do not you consider that a material element in the case?—Yes.

137. Is there any such element connected with a harbour at Wick?—No; certainly not.

138. Could a vessel putting into Wick dismasted or disabled get herself refitted with any degree of facility?—Not at present; but I have no doubt, were a harbour established there, that such facilities would soon be provided; but I do not think they could be provided with the same facilities as at Peterhead, from the vicinity of that place to Aberdeen, which has a large population and extensive works.

139. Do you not think that a vessel running into Peterhead under those circumstances would be easily refitted?—No doubt of it.

140. In fact she would find everything she required there?—Everything.

141. Shipbuilding yards and shipwrights in abundance?—Yes.

142. And a communication of less than 30 miles with the foundry?—Yes; there is a fleet of 30 sail of whale vessels at Peterhead, which gives rise to much work, and there is a good foundry at Peterhead at present, and also two graving docks.

143. Mr. *Grant Duff*.] You said that the fisheries at Wick were by far the most important in the north of Scotland, is not Peterhead the next most important fishing place to Wick?—I think it is; probably Fraserburgh has the same number of boats as Peterhead; I am not quite sure.

144. Is it not very generally supposed that they are over-fishing at Wick, and that they will have to diminish the number of boats which they are sending out from Wick?—With the present harbour accommodation it certainly is very much over-fished, but the great importance of Wick as a fishing station is this, that it has an extremely good fishing ground.

145. Is not it generally supposed that the good fishing ground at Wick is being exhausted?—I have not heard that; I am not aware of it.

146. You mentioned that the number of vessels passing between the Firth of Forth and Cromarty is not very great; but are there not more vessels that pass the Covesea lighthouse than pass the Pentland Skerries?—I think Covesea and Pentland Skerries are about the same, but Nosshead lighthouse is rather less; Covesea is 3,177, Pentland Skerries 3,113, Nosshead 2,806, and Buchanness 7,763.

147. The Nosshead lighthouse is close to Wick, is it not?—It is.

148. Is it not probable that the Pentland Passage will be used less and the Caledonian Canal more?—I do not know; I should rather think that the increase in the size of the vessels would tend to a different result.

149. Can you tell me if there are more wrecks in the Peterhead district than there are in the Wick district, or fewer?—There are more in the Peterhead district. I have got a Table also here, made up from the different lighthouses, showing the number of wrecks.

*Vide Appendix.*

150. Can you tell me the maximum depth of water in this harbour, which you propose at Peterhead?—About eight fathoms at the pier head.

151. Have you any doubt that the largest vessels now afloat could take refuge in it?—I think there can be no doubt about that.

152. Supposing a vessel caught in a south-easterly gale off Aberdeen, would it not be a very important advantage to a ship master to be able to run into Peterhead, rather than to cross that very dangerous sea to Wick?—There is no doubt of it. I have myself taken shelter in Peterhead Bay, in preference to going round Rattray Head. There is a very nasty piece of sea just at the north of Peterhead, between Peterhead and Kinnaird Head, off Rattray Briggs, where the tides run very fast, and the sea is certainly rougher than on any other part of the coast, except the Pentland Firth.

153. Is not Peterhead nearer the Baltic than Wick?—Yes.

154. How much?—I should think about 50 or 60 miles, or something thereabout. Peterhead stands out towards the mouth of the Baltic, and vessels from thence must make the land at Peterhead sooner than any other.

155. Can you tell the Committee from your own knowledge that it is a common practice for vessels coming from the Baltic to make for the high land of Aberdeenshire?—I cannot from my own knowledge exactly, but I have heard it said, and I know that vessels do make that high land at Buchan Ness Light.

156. You know from your own knowledge that Peterhead is a very important whale-fishing station?—I do. There are 30 whale ships belonging to Peterhead; large vessels.

157. Can you tell me the distance between Wick and Long Hope?—I think it is about 20 to 25 miles.

158. And the distance from Peterhead to Wick, and from Peterhead to Long Hope, is very much the same, is it not; it is a difference of only a very few miles, I believe?—I think it must be about 20 miles more from Peterhead to Long Hope than from Wick to Long Hope.

159. Mr. *Hassard*.] I understood you to say that there had been a considerable loss of fishing-boats at Peterhead formerly; do you mean that that loss has diminished now?—The loss, to which I alluded, took place during one of those sudden changes of wind some years ago; it may be five or six; at the same time that a very great loss took place at Wick; but there is nothing in the circumstances of Peterhead, in the harbour itself, to lessen that loss, should a similar state of matters occur again.

160. Then no change has been caused by any alteration of the harbour?—No; it is merely because circumstances have not occurred to cause a similar calamity.

161. I understood you to state, that this year a loss had occurred in vessels running to the harbour of Peterhead; did that loss occur near the harbour, or did it occur in consequence of the vessels not being able to reach the harbour?—I did not state that; I stated that, this year, a very great loss had occurred on the shore of Moray Firth.

162. You stated that Peterhead would be a very desirable place for a vessel to run to in a north-easterly wind; would she not have a very good shelter in the south bay as it stands in a north-easterly wind?—No; whenever the wind gets much to the east of north, there is a very heavy sea rolls round the south head, which renders the anchorage very unsafe for vessels; they are in so unprotected a state, because there is a chance of the wind getting still more easterly, and the vessel not being able to get out.

163. Is not the usual course of the shift of wind in the North Sea from south-east to north-east?—Yes; but still no prudent man that knows the danger of the bay at Peterhead during an east wind, would continue to lie there after the wind has got round much to the east; it is always a signal for vessels leaving when the wind begins to veer round to the east.

164. You were asked by the Chairman whether a vessel, when off Peterhead, being caught in an easterly gale, could run back again without she had sufficient offing; would she not always have a sufficient offing to do that; is not Peterhead on such a salient point of the coast as to enable her to do that?—No; she might not be able to round Peterhead from the south in order to get to Wick; nor might she be able to round Peterhead in running to the south, provided she were to the north of it when the gale came on.

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165. But

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165. But if she was far to the north, and had of necessity to round Peterhead, would she not have to round Peterhead to get into that harbour of refuge?—She would.

166. So that that harbour of refuge in that case would be of no use to her?—If a vessel were taken with a strong south-easterly gale when coming from the north, and were too close to Peterhead, she might not be able to round the point and get into the harbour, in which case she must go to Cromarty; or if there were a harbour of refuge at Wick, she could go to Wick.

167. In that case a vessel with a south-easterly gale would have a fair wind for Wick?—Yes.

168. Is there much sea across the Moray Firth?—There is a very heavy sea, and a particularly heavy sea off Rattray Head; that is, between Peterhead and Kinnaird Head.

169. But then she must be close in to be affected by that sea, must she not; in the south-easterly gale you spoke of first, if she could not run for Peterhead, she would run for Wick?—Yes.

170. And in a north-easterly gale, if she could not run for Peterhead, she might run to the Firth of Forth?—She would.

171. Do you know whether coal is nearer to Peterhead or to Wick?—There is no coal in the neighbourhood of either place, so far as I know; but the coal at present at Peterhead is brought from Sunderland and from that neighbourhood entirely.

172. When the railway is open from Aberdeen to Peterhead, will it give any facilities for the supply of coal?—Certainly.

173. Where will it be brought from?—From Fifeshire and the west of Scotland.

174. You stated that from Wick to Long Hope is about 25 miles?—Yes.

175. Long Hope is the only natural harbour at present existing in that distance?—No; there are several. Scrabster is a very good harbour, and Long Hope and Dear Sound also.

176. But a vessel off Wick, the east of Wick, running for any of those, Scrabster, Long Hope, or Dear Sound, would have to cross or go through Pentland Firth?—In going to Dear Sound, if she had a good offing, she would not have to cross it.

177. But she would have a heavy sea?—The sea is not so heavy off shore as it is in the Firth itself, but still she would have a very bad sea to go through.

178. Mr. *Augustus Smith*.] You spoke of the herring fishery being important to Wick, is it in consequence of the boats belonging to the port being engaged in the herring fishery, or from boats which come there from other places?—Partly both; the herring fishing of Wick is partly composed of boats from the port, and partly of boats which come from other places during the season.

179. Is the collection of boats from other places which congregate there greater in number than congregate at other fishing ports on that part of the coast?—Yes.

180. Are they greater, for instance, than those at Dunbar?—Yes; I believe that during the herring fishing the boats at Wick are much greater than at Dunbar.

181. Then the number of fishing boats is much greater at Wick than at any other place?—Yes.

182. Are you acquainted with the other fishing ports round the kingdom?—Round the coast of Scotland I am intimately.

183. With the other parts of the kingdom, Ireland or England?—No, I cannot say that I am; not with the fishing ports.

184. Then you cannot give any information as to the relative claims of Wick, as a fishing port, compared with other ports?—In Scotland I can; but not as regards England or Ireland. I act as joint engineer, along with my brother, to the Fishery Board of Scotland.

185. You seem to have some knowledge of these seas; how far to the eastward of Pentland Firth do the rough seas extend?—They extend considerably beyond the Pentland Skerries.

186. Have you considered at all the main principles which should direct our choice of the position in which harbours of refuge should be constructed?—With reference to the question generally, I should say you must be guided by the particular circumstances of the coast, and of the trade in all cases.

187. But

187. But is there any particular principle which you could lay down as showing why one position should be selected more than another?—Nothing, excepting, in the first place, physical facility; and after that, or along with that, the amount of traffic, and the number of casualties which occur in the neighbourhood; those are the only general principles which I think can be applied in such a question.

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188. Which do you think would be the most important as a position for harbours of refuge; the salient points of the coast which are bare of natural harbours, or the bights of bays which are equally without natural harbours?—That is a question which it is rather difficult to answer, because I am afraid that it would be impossible to give an answer which would be generally applicable; for example, in the coal districts of England, all the harbours are situated within a bay, and all vessels bound for them must enter that bay; in which case, at first sight, it would naturally occur that a harbour in Tees Bay would be a very good thing. On the other hand, on such a coast as that to which we have been referring, I think the salient point of Peterhead holds out very great advantages; it is very easily made; and for vessels leaving it there is a very good loose, as sailors call it; and it is in this respect that a harbour at a salient point, such as Peterhead, excels a harbour in a bight, such as Cromarty.

189. Taking then a salient point for a position for a harbour of refuge, which would deserve that character most, Peterhead or such a position as Wick?—Wick stands on a salient point also to the south; the coast there trends away to the south from Wick, just as it does from Peterhead; but the prominence on which Peterhead stands is much greater than that on which Wick stands, and the range of coast, both to the north and to the south of Peterhead, unprovided with any harbour is very much greater than a similar range of coast to the north and south of Wick. For example, you have Wick, and to the south of that you have Cromarty Firth, which is about 30 miles distant; at Peterhead you have nothing till you come to the Firth of Forth, which is upwards of 100 miles, and to the north again on the other hand round from Wick you have those harbours in the Orkneys, within a short distance. The first harbour you have north of Peterhead is the Firth of Cromarty, which is in the bight of a bay, and at a considerable distance, above 100 miles from Peterhead.

190. With reference to a harbour at Peterhead, do you think the position of the south bay, as it is called, is the best position round that point of coast, taking from Kinnaird Head down below Peterhead?—There is no doubt of it whatever, not the least; there is no point of that coast which presents anything like the same natural facilities and the same amount of shelter.

191. Is the area within the proposed harbour of Peterhead a good anchoring ground?—It is good holding ground.

192. What ground is it?—It is clay.

193. Is there any disposition to silt up?—None whatever; it is free from sand.

194. Still further to the south, there seems a position there, just north of Buchan Ness lighthouse?—That is what is called the Invernetty Bay.

195. Is there any facility for constructing a harbour of refuge in that position?—None at all equal to the south bay of Peterhead. The great advantage of the south bay of Peterhead, and of those piers as laid down, is, that they are under very considerable shelter, as you will see from the protecting headland called the South Head.

196. Which is the sea that is most felt upon that coast?—The north-east is by far the worst; the north-east coming round that head, would pass to the seaward of the works laid down, and expend itself in that bay; the works themselves, as laid down, would be very considerably protected.

197. In a north-north-east gale the sea would fall in heavier between the Skerry Rocks and the shore, than it would up in what you call the South Bay?—It would.

198. Are you well acquainted with the harbour of Wick?—Very well; I made several designs for the improvement of the harbour of Wick for the British Fishery Society; the last one was a design for a boat harbour.

199. Would it be possible to make a harbour of refuge there, so as to prevent the heavy sea falling in from north-easterly winds?—I think it would if the piers were made from the outside, so as to enclose the whole of the bay. I do

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not allude to the plan for inclosing half of the bay, brought before the Committee last year. I do not think that would answer the purpose at all; it entirely cuts up the anchorage.

200. Then you have seen the plans which were here last year?—I have.

201. Do you think they would keep off the east wind seas?—No, certainly not. The plan I saw last year consisted of two piers projecting from either side, with an opening in the middle. I have no hesitation in saying that that harbour, as so laid down, would be so seriously exposed, as to render it of very little use indeed, independently altogether of the difficulty of vessels taking or leaving it in consequence of its embayed position and the recoil of the sea.

202. Would there be any risk of the harbour silting up?—I do not apprehend that there would be any risk of the harbour silting up in that position.

203. Is there not an accumulation constantly of sand in that harbour now?—No, I think not. Comparing the soundings taken lately with those taken many years ago, they prove rather an increase of depth than otherwise. There is rather a misconception as to the present harbour of Wick as to silting. There is no doubt in the world that there is a constant accumulation of sand there, but that proceeds from the circumstance of the harbour having been dug out below what way be called the normal level of the sand bank or beach.

204. Mr. Dodson.] Is there any considerable number of vessels engaged in the passing trade wrecked, in the course of the year, near or about Peterhead?—Between Girdleness and Kinnaird Head there have been 35 wrecks during the last 10 years.

205. Of vessels engaged in the passing trade, and not connected with the local fisheries?—Coasting vessels; vessels passing.

206. Vessels merely engaged in the passing trade?—Yes; or they may have been bound to some of the ports in the neighbourhood; but they were wrecked. Thirty-five is the number within the last 10 years upon that part of the coast.

207. Do you consider the advantage of a harbour at Peterhead to be chiefly to obviate the wrecks, or to prevent vessels being driven out of their course and having to go to Cromarty or back to the Firth of Forth?—I should say, both the one object and the other. If you obviate the necessity of a vessel making a long coasting voyage in a rough sea, such as that is, in order to run for shelter, of course you reduce very much the chance of wreck along the whole of that coast.

208. What depth of water is there at the entrance of the harbour of Peterhead now at low-water spring-tides?—At the north harbour I think there is about nine feet; at the south harbour it is nearly dry, only a foot or two.

209. Sir Frederick Smith.] You just now mentioned the wrecks between Girdleness and Kinnaird Head?—Yes.

210. Are those wrecks from stress of weather or from fogs, or what?—That I cannot answer. The number is merely made up from the returns which are sent from the different lighthouse stations. Those wrecks having occurred on that part of the coast, they are merely given here in a tabular form, to show a comparative view of the wrecks so reported on different parts of the coast.

211. Do you know what class of vessels they were, whether large or small?—I have the means of knowing, but I have not them here; they were, I believe, generally ordinary coasting vessels.

212. Can you state whether a vessel with an easterly tide and a westerly gale can enter any of those Orkney harbours you have spoken of, particularly Long Hope?—Long Hope she could not enter by going through the Pentland Frith, if the weather was very bad; but Dear Sound she could.

213. Chairman.] Any evidence of that nature, I presume, you give from hearsay, rather than from practical knowledge?—Not exactly. Though not a sailor, I have had ample means as an engineer of seeing and knowing the coast.

214. Mr. Traill.] Has Dear Sound been always resorted to by passing vessels?—It is a well-known anchorage in the Orkneys.

215. With an easterly wind, I suppose vessels cannot go near it?—No, not with a north-east wind, if far to the south of it.

216. Long Hope, I believe, is the principal harbour of the Orkneys?—Yes.

217. Wide Wall is rather an open bay, is it not?—It is a very good harbour indeed, but shoal.

218. It is small?—Yes; Long Hope and Stromness are the principal harbours, and Scrabster on the south.

219. What

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219. What means have you of knowing by the lighthouse returns the number of vessels passing any particular part of the coast?—The light-keepers at the different lighthouses have got printed forms, they observe the number of vessels that pass during the day (they of course cannot observe during the night), and they forward to the lighthouse office returns of those every month, and it is from those returns that the tables which I have handed in are made up. I may observe that these observations are now, I believe, discontinued.

220. Therefore, that must be very inadequate as a criterion of the number that actually do pass?—I should say that the total number that pass may be safely taken as double, to make up for those that pass during the night, but still that gives a comparative view of the number at the different places.

221. Have you any particular means of knowing about the passage of the vessels through the Pentland Firth to the Baltic and Archangel, and to the Straits, and so on?—None, except from the lighthouse returns at Dunnet Head and at the Pentland Skerries, and from the light dues paid which I can furnish.

222. They cannot give the destination of the vessels?—No, only the number.

223. According to your statement, you say that all the vessels from Archangel going to the west pass through the Pentland Firth?—A great many; but many go between Orkneys and Shetland.

224. All vessels coming from the Baltic going to the north-west of England, and to the west of Scotland or Ireland, pass through the Pentland Firth?—That is their direct course, but they do not necessarily go that way.

225. Occasionally vessels coming from the Baltic to the south coast of this island come to the Pentland Firth, do not they, driven by stress of weather?—I have no doubt that they have been driven to that coast.

226. You mentioned the great importance of Wick as a harbour for the fisheries belonging to Wick, and also as a harbour of refuge for the fisheries along the coast?—Yes, along the Caithness coast.

227. There are certain winds, are there not, in which the harbour of Wick is not at all accessible?—Yes.

228. What are those winds?—All from the south-east to the north-east throw a very heavy sea into the harbour of Wick.

229. Therefore the harbour of Wick is useless at that time, whatever may be the interior accommodation?—Certainly, at present.

230. If a breakwater were to be constructed inclosing the whole bay with an opening at each end, that would be a complete answer to that objection, would it not?—If a breakwater was constructed inclosing the whole Bay of Wick, then the objections would be obviated.

231. Do not you consider the construction of such a harbour would be a very important national benefit, not only to the fisheries but to the trade of Scotland in general?—There cannot be a doubt that the construction of that harbour at Wick, either on a small or a large scale, is an object of very great importance.

232. But on a large scale, because it would be at all times a harbour of refuge for the fisheries?—On either scale it would be an object of very great importance.

233. Do you consider that that would be of more importance than any harbour for the coasting trade that could be constructed on the east coast of Scotland?—No, that is not exactly my opinion. I think, as regards the question of fishing, Wick is the most important place; but I think, as regards the question of the general coasting trade of the country, Peterhead has much higher claims, and the wants of the fisheries at Wick could be supplied at a smaller cost, and with a smaller harbour than would be necessary for a general harbour for coasting vessels.

234. Taking Wick as a fishery harbour connected with the port, and also as a harbour for all the fishings from Moray Firth to Duncansby, and considering also it would be of some advantage, as you admit, as a harbour of refuge for shipping, would you not conceive that that is the greatest national object to which the public funds could be applied on the east coast of Scotland?—If my opinion were asked as to how funds could be applied, it would be necessary to know the extent of the funds to be expended. If a small sum were to be expended, such as 50,000 £. or 100,000 £., I have no hesitation in saying that it would be better expended in Wick than in Peterhead. I do not think that at Peterhead you could do anything with 50,000 £., or even with 100,000 £., that would render it worth while to lay out such a sum; but on the other hand, if a large sum of money, such as 350,000 £. or 400,000 £., were to be expended, then I cannot help thinking that it would be much better expended by making a

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modified harbour in Wick Bay, and a large harbour at Peterhead. There ought to be a harbour at both places to supply the wants of the coast properly.

235. But you do not consider that a harbour to enclose that bay at Wick is a primary object for the adoption of the Government in the outlay of the public money?—Not to the permanent and total exclusion of such other places as Peterhead, where the traffic is so much greater.

236. Do you happen to know the loss of life that occurred in the wrecks that took place between Girdleness and Peterhead which you mentioned before?—No, I do not.

237. Mr. *Kendall*.] I have come to the conclusion, from what I have heard you state, that you would think it very desirable to have a harbour of refuge at Wick, and also at Peterhead; but leaving out the special interests of Wick and Peterhead, and supposing that only one harbour of refuge is to be thought of for the general accommodation of the coast, have you any doubt that Peterhead is the place?—Not the least; that is my opinion.

238. If 50,000 *l.* only were laid out, you think that that small sum could only be laid out well at Wick, and that that would not meet the requirements for general accommodation?—Only in a very limited degree.

239. I understand that granite is available at Peterhead, and that slate of a very good quality is available at Wick?—Yes.

240. Is the slate at Wick as good for the purpose of building a harbour as the granite at Peterhead?—The slate at Wick is not so good for the under-water work, but it is better for the upper-water work; because it is cheaper for that.

241. Is it of such a nature that you could use it for the under-water work at Wick?—Yes.

242. Are you quite sure of that?—I am quite sure of that.

243. As far as granite goes, is there granite available at Wick?—No, it is a mass of clay slate, forming a portion of what is called the old red sand stone formation, but there are no sand stone beds near Wick. The stone at Wick is a stratified rock and that at Peterhead is unstratified. The granite is very well adapted for a breakwater constructed upon the principle of tumbling the stones into the sea.

244. Is its position at Peterhead such that you can get it with fair facility?—You can get it with very fair facility; you can get a face of any reasonable height; granite is only an expensive material when you come to dress it.

245. Mr. *Liddell*.] You have stated that 200 vessels have taken refuge in Peterhead; during what time?—That is annually on an average of 10 years.

246. That is to say, 200 a year?—Yes; but Mr. Boyd, the clerk to the harbour trustees, has got the whole of that information; I only speak from information obtained from him.

247. Those returns can be put in if the Committee wish?—Yes.

248. I presume they give the tonnage of those vessels?—They do, I think.

249. You have stated that vessels bound for Archangel ordinarily sight the land at Peterhead?—That is my information.

250. Would vessels bound from all the southern ports, Hull, Newcastle, and so on, down the north-east coast, all take that course?—I should think so.

251. To what vessels do you refer, when you speak of vessels bound to Archangel sighting that land?—It is pretty much in the direction or in the track of such trade, and you can only judge from seeing, what I have seen repeatedly, those large-class vessels bound in that direction crossing the Moray Firth beyond Kinnaird Head. It is only from that general information that I can speak.

252. You stated also that 35 vessels had been lost in the course of 10 years; but I think you afterwards added that they were chiefly coasting vessels?—Chiefly vessels, I have no doubt, that were bound to ports north or south of Peterhead, and not vessels bound to Archangel; I think not; I believe they were chiefly coasting vessels.

253. Do you know, of your own knowledge, of many vessels of the size that you have described, bound for Archangel taking refuge at Peterhead?—I cannot say, of my own knowledge; the returns will very likely give that; but these large vessels cannot generally come into the harbour, and I believe no account has been kept of vessels anchoring in the bay.

254. You stated, in the early part of your evidence, that Wick was better adapted for small vessels, whereas, if a large harbour was to be constructed, you recommended Peterhead; you have since stated that, by the outlay of a small

sum



sum of money, in your professional opinion Wick could be made available for those small vessels; is that so?—Yes.

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255. You have said, that unless 300,000*l.* or 400,000*l.* was laid out, it would be better to apply the outlay of any smaller sum to the improvement of the harbour of Wick; is that your opinion?—Yes; but I must make a slight explanation of the answer to which you allude. When I said that for a small expenditure a harbour could be made at Wick which would be available for small vessels, I had reference in making that answer solely to the question of the fishing trade connected with it; but the sum of 50,000*l.* could not in Wick Bay make a harbour, which could really be called a harbour of refuge, even for small vessels, at all times, and in all circumstances.

256. You mean, then, that Wick Bay would only be available for fishing boats?—For that small sum you could not do anything at Wick that could be available at all times and in all weather as a harbour of refuge, but it would be a perfect protection for the fishing boats, and the small craft attending them, during the summer season; at Peterhead, on the other hand, for a small sum, you cannot do anything at all.

257. Is there any refuge at all at Aberdeen, or at Fraserburgh?—Fraserburgh is open to the north-east wind entirely; there is no protection; and Aberdeen is open to the north-east wind.

258. You hold an official situation, I believe?—I am joint engineer with my brother to the Board of Fisheries, and I am also joint engineer along with him to the Commissioners of the Northern Lighthouses of Scotland; and in prosecuting those duties, I have occasion to see, perhaps, more of the coast than most landmen have.

259. Who employed you to survey that bay and to draw up that chart?—The trustees of Peterhead Harbour, for whom I have acted as engineer for the last 15 years. In 1845, I gave them a report, recommending a harbour of refuge in the south bay of Peterhead, and since that period, under my direction and my brother's, they have expended some 60,000*l.* in improving the present harbour of Peterhead.

260. From personal experience of, and long acquaintance with Peterhead Harbour, can you state whether it is used by out-going vessels to any extent in cases of distress at present?—Not in cases of distress, because large out-going vessels cannot get into the present harbour of Peterhead, excepting in high tides and good weather. The 200 vessels which I alluded to, were vessels of a small class, that were capable of entering the present harbour, but a large vessel cannot enter the present harbour except under very favourable circumstances.

261. Then, supposing at present they meet with stress of weather, where do they run?—Large vessels run back to the Firth of Forth.

262. *Mr. J. Ewart.*] I suppose there is shelter now with a north gale for large vessels?—With the wind from the north and west, there is ample shelter at present in the bay; but whenever the wind comes to the east, of course there is none for large vessels.

263. *Mr. Liddell.*] Is it not the case that the east wind is the wind that is mainly dreaded?—There is no doubt of that whatever.

264. *Mr. Grant Duff.*] You said you had been employed in your professional capacity by the trustees of the harbour of Peterhead; have you also been employed in your professional capacity at Wick Harbour?—Yes; by the British Fishery Society, who are proprietors of Palleneytown in Wick Bay.

Captain *James Henderson*, R.N., called in; and Examined.

265. *Mr. Liddell.*] WILL you state to the Committee your profession?—I am a retired Commander in the Royal Navy at present, and have been very long upon the coast of Scotland.

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R.N.*

266. Are you well acquainted with that coast?—I am acquainted with every part of it; I belonged to two ships of war and to revenue vessels for upwards of 12 years in the North Sea.

267. Can you, from personal knowledge and experience, speak to the whole of this coast into which the Committee are now inquiring?—Perfectly, from nautical experience.



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268. Sir *James Elphinstone*.] You say you have been 12 years in the North Sea?—Yes.

269. Were you there in the war time?—In the war time of 1810, 1812, and 1814, to the conclusion of the war.

270. Were you ever in Pentland Firth or the Orkneys, or that neighbourhood, with a convoy?—Frequently.

271. Where were you bound to?—In 1813, in the “*Clio*” sloop-of-war, to Archangel; in 1814 again to Archangel, in the “*Apelles*” sloop-of-war; and frequently to the Baltic.

272. Had you occasion at any time to take refuge in any of the harbours in the Orkneys?—I always considered, and do consider, that the Orkneys are harbours of refuge of themselves.

273. Did you ever, in the course of your service, take refuge in Wick Bay?—Yes.

274. What is your opinion of Wick Bay as a station for a harbour of refuge?—For the fishing boats, and vessels connected with the fishing, a harbour of refuge should be there; but not for anything beyond that.

275. Do you think it a necessary thing, in a national point of view, looking at the importance of the fisheries at Wick, that shelter should be provided for fishing vessels, and vessels attending upon them?—Quite so.

276. But would that shelter, under any circumstances, in your opinion, be available for the general trade of the country?—I think not.

277. You have been through Pentland Firth, I suppose?—Frequently.

278. Do vessels ever attempt to work through Pentland Firth, the wind blowing strong from the westward?—Never.

279. What do they do under those circumstances?—Lie at anchor. I have been at anchor under several of the islands. I rode out a very heavy gale of wind in Scrabster Roads.

280. With the wind to the westward, supposing a vessel to be caught at the eastern entrance of the Firth, would she run to Wick, in preference to any harbour in the Orkneys?—No; not if she could get to the Orkneys.

281. Does it consist with your knowledge that a ship running for Cromarty, with a north-easterly gale, frequently meets a wind at the upper part of the Firth, blowing downwards, that prevents her getting into Cromarty at all?—It is a very rare occurrence to go into Cromarty with a fair wind. I have done so on some occasions; but when we get to Burgh Head, the wind comes down, almost usually, right out of Cromarty.

282. Were you ever placed in a position of peril to your ship from running for Cromarty?—I have run round to Peterhead, in severe weather, many a time.

283. Have you rounded Kinnaird Head in bad weather, bound to Cromarty?—Yes.

284. Did you get to Cromarty?—We usually got there, because when going there, being a revenue vessel, it afforded anchorage at the time.

285. Were you ever placed on a lee shore by a shift of wind in the Moray Firth, having run for the Bay of Cromarty?—I have had the wind chop round to the north-east from the south-west.

286. Is that a common thing on that coast?—Yes, in the winter time.

287. Have you not known very great loss of life at Peterhead from the wind suddenly chopping round to the north-east?—More so from the wind to the south and south-east.

288. Do you remember a very great loss of life some few years ago from the home fishing vessels there being caught?—No; I was not in Scotland then. I belonged to a man-of-war, whose captain was washed overboard and drowned off Buchan Ness.

289. What were the circumstances under which that happened?—She had just been wore with her head off shore, shipped a sea, which washed the captain and one of the men overboard, and they were drowned.

290. If there had been a harbour of refuge at Peterhead, could she have got into it under those circumstances?—Yes.

291. Suppose a ship from the Humber was bound to Archangel, and got into the latitude of the Firth of Forth, we will say in longitude 2° east, as indicated on that chart, could she not fetch into Peterhead in that position?—Yes.

292. Would she, under those circumstances, ever think of going to Wick?—No, never.

293. Are there any circumstances which you know of that would induce a ship

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to run so far to leeward as to go into Wick, if there was a harbour of refuge at Peterhead?—No, it was never contemplated to run to Wick, as the Orkneys were always open in my day.

294. Suppose the wind was blowing hard from the westward, and you were off Wick, could you get in there?—Yes, you may get in.

295. With the wind blowing hard from the westward?—It would be a question whether you could work up to it; but I have done so.

296. Suppose the wind was to chop round to the eastward, could you get out again?—Not well.

297. Suppose it blows hard from the north-east, would you go into Wick, or would you not prefer to run through Pentland Firth if you were bound to the westward?—I would.

298. Is not Peterhead the nearest point in Great Britain to the Sound, the Baltic, and Elsinore?—It is.

299. If there was a harbour of refuge, such as is indicated on that plan, would it not become a very great port of call to ships coming over for orders?—I should think it would.

300. And instead of indicating 200 annually as the number that go there, would it not be very much increased?—I think the place would be filled through the greater part of the year by ships calling for orders, particularly when a railway was there.

301. The south bay at Peterhead would not be available for a harbour of refuge off Buchan Ness; you would not advise a harbour of refuge in the southernmost of those two bays?—No, I would not.

302. It is not contiguous to the town and docks, and there are good reasons against it?—Yes.

303. Looking at the thing in a strategical point of view, and as a national undertaking, supposing it is absolutely necessary to have a harbour of refuge for the general trade of Great Britain, where is the point on the east coast of Scotland on which you would consider a harbour of refuge would be best placed?—In a national point of view, combining the strategical and mercantile considerations together, I should say Peterhead Bay.

304. You have no connexion or personal interest in the district, I suppose?—No; I merely heard by chance that such things were contemplated about a month ago; I did not know any person, either in Wick or Peterhead, or in any part of Scotland connected with the matter; but from my long experience in former times, I volunteered my services to advocate Peterhead from a national feeling.

305. Supposing that those works were completed, would there be refuge there for a fleet?—I should like to have it a little larger, but it would hold a good many ships, and there is not one other harbour on the east coast of Scotland which has the natural capabilities, except the Friths of Forth and Cromarty.

306. Would you say eight or ten sail of the line?—It might hold from eight to ten sail I should think.

307. There would be shelter for them?—I should think so.

308. In the event of those ships requiring refitting, heavy spars, or repairs to machinery, would you not consider it a very great advantage to have a harbour of refuge for such a purpose at the terminus of a railway?—Certainly, I should. Peterhead is capable of being turned to every advantage as a naval port.

309. It is already a naval port of considerable importance, is it not?—No; not a naval harbour exactly, but there is every capability of making very extensive docks, both dry and floating docks.

310. Do you not dread a calm in the Pentland Firth more than anything else?—Yes; I should observe that Peterhead could be well fortified also.

311. From your own experience, supposing you were caught on the east coast of Scotland in a gale of wind, and you had the Firth of Forth, Peterhead, and Wick, open to you, Wick and Peterhead being both of them harbours of refuge, which would you prefer to run to?—Peterhead.

312. Do you consider that a harbour of refuge at Wick would be of as great national importance, taking everything into consideration, as one at Peterhead?—No.

313. Would not Peterhead be the natural point for a flying squadron in case of war?—Yes, it would be most essentially so.

314. Do you consider it a place of very great importance in that respect?—Very great.

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315. Mr.

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315. Mr. *Joseph Ewart.*] Is the holding ground good at Peterhead?—Very good.

316. Mr. *Philips.*] You are acquainted with that coast at present, are you?—Yes, and have been for many years.

317. In the Report that has just been put into my hands, I see in the Appendix there is a Table of the number of vessels observed passing the different lighthouses during the day. I see that in the year 1850, 10,186 vessels are reported to have passed Buchan Ness; and in the year 1856, 5,274; the number being reduced, therefore, to nearly one-half. Can you account for that. Has the tonnage increased; is that the reason?—I understand that a great quantity of the goods from the Baltic are now taken to Hull and sent over by rail, instead of going round the Land's End. I do not know it of my own knowledge.

318. Have you any other reason by which to account for it?—None at all.

319. Mr. *Grant Duff.*] Were you not at one time master attendant at Plymouth?—I was.

320. Have you heard many naval officers express a strong opinion in favour of Peterhead, as a harbour of refuge?—Those few whom I know at the present time have been always of that opinion who were on the station with myself.

321. And you have actually been in situations yourself in which you very much wished for a harbour of refuge in the south bay of Peterhead?—Very often.

322. Is not Peterhead much better marked both by night and by day than Wick?—Yes.

323. More especially by day?—Yes, it is very well marked by day.

324. There is a double harbour, is there not, at Peterhead, so that a vessel may depart from it with more winds than is usual from most ports?—Yes.

325. Supposing a railway were ever extended to Wick, is it not the case that there are one or more sea ferries that must be crossed?—There are.

326. There is no present prospect, nor any prospect for years to come of a railway being extended to Wick, I suppose?—I am not aware.

327. I understand you to say that you simply volunteer this evidence without having any connexion either with Wick or Peterhead?—Exactly; I wrote to the Provost of Peterhead as being the head of the town, and I did not even know his name.

328. But had you any previous acquaintance with him or with Peterhead?—None.

329. Mr. *Hassard.*] How far off Duncansby Head to the eastward does the influence of the race of the Pentland Firth extend?—Three to four miles.

330. A heavy sea is not felt further eastward than that?—No.

331. I understand you to say that at Peterhead there might be docks, and a naval establishment created. Is there room for that there at present?—Yes, there is room.

332. But is there a capability of their being made?—Perfectly so.

333. The land is low here (*referring to the plan*)?—The land is low there.

334. Is it your opinion, from your experience there, that a squadron at Peterhead would protect the trade going either north of the Orkneys, or through Pentland Firth, or through the Caledonian Canal, as well as a squadron at Wick?—I consider that a fleet of vessels at Peterhead would protect the whole coast.

335. Even vessels going north about to the Orkneys?—As a rendezvous. They would be always coming and going.

336. You spoke of a double harbour at Peterhead, could those harbours be connected so as to allow large vessels to pass from one to the other, and get a "loose" either north or south?—Vessels of moderate size, not the larger ones; it would be a great expense to do it.

337. The substratum is rock, I believe?—Yes.

338. Mr. *Augustus Smith.*] You were some time, I think you said, acquainted with the north seas?—A long time.

339. Do the mercantile shipping generally go outside the Orkneys, or do they go through the Pentland Firth?—If they can go through the Pentland Firth they usually take it.

340. But practically, what is generally the case; does the larger amount of shipping go through the Pentland Firth, or outside?—Through the Pentland

land Firth. The very large ships go north, but the mass of shipping goes to the south.

341. Do you suppose that a harbour of refuge at Wick could be of any service to those that went outside the Orkneys?—None.

342. In the case of shipping engaged in the trade to Archangel starting from any of the east ports of England, at what distance would their average course be do you suppose from the north-east coast of Scotland?—I suppose they would endeavour to sight the land about 20 miles off Peterhead.

343. Sighting the land up to where?—Up as far as Peterhead.

344. Do you find that the winds generally come round from the south to the north?—Generally from the south to the north.

345. Supposing that vessels were just in the position which you state, 20 or 30 miles to the east of Peterhead, and a gale was suddenly to commence, probably from the south-east, could they still run on that course?—They could.

346. Then they would not care for a harbour of refuge at Peterhead, much less at Wick?—No.

347. Should the violence of the gale be such as to make them desirous of taking refuge, where would they run for, being well off Peterhead; Wick, or the Orkneys; which do you suppose they would prefer?—I should prefer the Orkneys.

348. Or Shetland; could they run there?—Yes; there are excellent harbours at Shetland.

349. With easy access?—With easy access also.

350. Are the harbours in the Orkneys of easy access?—Very easy.

351. The influence of the heavy seas running through the Pentland Firth would hardly affect a ship running off Peterhead getting to the Orkneys?—It would to a certain extent; but those who are acquainted with the state of the tides there, pilots and others, would know when the tide would serve, so as to take advantage of it.

352. But could they get into one of those harbours of the Orkneys without being interfered with by the race coming through the Pentland Firth?—Yes; there are several anchorages.

353. Are there any anchorages to the north of the Orkneys?—There are harbours in the other parts of the Orkneys.

354. Could they keep far enough to windward so as to be out of the influence of the race?—Yes.

355. Have you studied much the circumstances under which it would be desirable to place harbours of refuge round the coast generally?—Yes.

356. Which do you think are the most important points on which harbours of refuge should be placed?—A general harbour of refuge, a national harbour of refuge, should be on a prominent point.

357. Because it is a salient point?—Yes; and also because it has a very available entrance.

358. You think its being a salient point is not an objection to its being made a harbour of refuge?—No; it is an advantage.

359. In what way is it an advantage?—It enables you to get out of harbour and clear the land so much quicker.

360. In which direction?—Both north and south.

361. Is not that the great merit that attaches to the Downs as a natural anchorage?—It is.

362. Then with regard to this particular harbour on the lower part of this map; are you well acquainted with the whole of that bay?—I am well acquainted with it all.

363. That part just north of the lighthouse; do you know that point?—Yes.

364. Is there any good anchorage there?—With the wind off shore, but not if the wind come much from the eastward.

365. Would not those three rocks, as they are marked there, form a sort of buttress for a breakwater?—They do so; I regret that they are not to a greater extent to the north-east.

366. Suppose there was a breakwater at that point, just off Buchan Ness lighthouse to the rocks; would that form a good shelter?—Yes; Peterhead being there.

367. But leaving Peterhead out of view, supposing there was no town at all,  
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nor port there, and you wanted to form a harbour of refuge without reference to local interests, would the one position be as good as the other?—That would have the preference, because the Skerries are there.

368. What are the Skerries?—The centre one is a small island.

369. In what formation; is it granite?—Granite.

370. As a position for ships of war, looking at the interests of protecting the German Ocean along the north coast of Scotland, what position should you consider the best that could be selected?—Peterhead.

371. Mr. *Dodson*.] You told us that you had been in a position where you wished for a harbour at Peterhead; was it because you were apprehensive of being actually wrecked, or because you were driven off your station by a gale, and under the necessity of seeking shelter?—Being in a revenue cutter, the object was to get shelter and to anchor until the weather moderated, in order to keep the sea, or to remain upon that station.

372. You were not in actual danger of being wrecked?—No.

373. Can vessels in the prevailing gales off Peterhead generally make either for Cromarty, or stand off to the south-east?—Yes.

374. Do you recommend a harbour at Peterhead principally upon mercantile or upon military grounds?—On both.

375. Not on one more than on the other?—No; if it is for a naval harbour, it would also answer for the mercantile marine, and be a very important harbour for Scotland.

376. Mr. *Traill*.] Can a vessel wishing to go to Long Hope pass up the Pentland Firth with a westerly gale and easterly tide?—She would not pass through with a westerly gale.

377. She could not get to Long Hope up the Firth?—No.

378. Do you know anything of the course of the mercantile marine in this country in going from the north-east coast of England to the north-west coast of England; that is to say, from the north of Newcastle, going to the Clyde and to Liverpool, or to Ireland?—There is no doubt that many do go that way.

379. Do they go much through the Pentland Firth?—No doubt they do.

380. Then if there was a harbour of refuge at Wick, so as to render them secure against south-westerly gales upon that coast, they would probably go that way in greater numbers, as being the more direct course?—I do not think the formation of Wick bay admits of a large harbour.

381. Supposing Wick bay were to be closed in except at each end, according to the plan of Mr. Rendel two years ago, would not that make a very large harbour?—From the plan I have seen, it is impossible that a vessel could lie in the bay with the wind from the south-east.

382. I do not speak of this plan?—That is the only one I have seen.

383. You consider Peterhead a good place for a station for the navy?—Yes, from its prominent position.

384. Is it easily defensible?—Perfectly.

385. Would ships lying in this harbour of refuge, which you speak of making at Peterhead, be safe against a steamer on the outside?—Perfectly so; there are the means by which engineers could protect it, by batteries and other things.

386. Does the ground admit of batteries being so erected as to prevent a steamer taking a position which would enable her to destroy ships within the harbour?—I think quite so.

387. Mr. *Clay*.] The Wick fishing boats are exposed a good deal to danger, and are very frequently lost, are they not?—I believe so.

388. In what gales?—With the wind on shore south-east.

389. Would a harbour at Peterhead provide for that?—Not for boats on the coast of Caithness; not at all; it is too far off.

390. Mr. *Liddell*.] The general turn of your evidence seems to regard this rather in a national point of view than in any other light. I presume you anticipate the use of a harbour of refuge in the neighbourhood of Peterhead, in the event of fleets of the Queen's ships being employed in the Baltic, or in the North Sea, as a place to which they could run in bad weather?—Yes; such ships as, in my opinion, ought to navigate the North Sea, but not those of the largest class, such as the "Royal Sovereign," "Royal Albert," &c., which class of ships is not suited for the North Sea and Baltic, from their great draught of water, and therefore not likely to be employed there.

391. In looking at the plan, do you consider that that harbour would be efficient

efficient and sufficiently large for a fleet, such as might be expected to be employed in the North Sea, to run into in case of heavy weather?—No, I think it would not hold a large fleet of ships of war in its present position; but there is a capability of making it quite so.

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392. Does your acquaintance with the coast enable you to say whether the amount of large vessels frequenting that coast, other than ships of war, would justify the expenditure of a large sum of public money in a harbour of refuge in this locality?—I should think, if there were a harbour of refuge at Peterhead, it would be a very great port of call for ships of war and for mercantile vessels.

393. Going where?—Coming from the Baltic and Archangel.

394. You have stated that outward-bound vessels, plying to Archangel and other places, would sight the land about 20 miles distant from the Port of Peterhead?—Yes, that would be the last land they would see on the coast of Scotland, or the Shetlands. They would naturally wish to take a good departure for rounding the North Cape.

395. Would it not be the case that such vessels would be large, powerful vessels; and, in the event of a gale springing up, would they not rather desire to keep to sea than come near the land, being caught in a gale of wind?—They would either do so or run to Cromarty, because there they would have the land bold on both sides.

396. I thought there was a considerable difficulty in making Cromarty?—There is no difficulty in getting there. There is no difficulty in getting in; but frequently, in gales from the eastward, there is difficulty in getting out.

397. Vessels plying from the east coast of England to the north coast of Scotland, being unable to get to Cromarty, or to get through the Pentland Firth, would find accommodation at the natural harbours of the Orkneys?—I think so, if they could get there.

398. There are some particularly rough states of tide and states of wind, which make the Pentland Firth dangerous; is not that so?—Yes, the westerly winds.

399. Under those circumstances, vessels in the neighbourhood of the Pentland Firth could find accommodation in the natural harbours of the Orkneys?—Yes, if it did not blow too hard, and they could get in.

400. There was a professional question put to you some time ago, in which an Honourable Member of the Committee talked of a gale changing from west to east. I wish to ask whether it is common that a gale springing up from the west does change round to the east, or the reverse?—Very seldom from those two points, but from south-west to north-east, or north-west to south-east.

401. But is it not usual for a gale to blow itself out from the quarter from which it arises?—It is usually the case, when from west to north-west; from the other quarters it is changeable during winter.

402. Mr. *Augustus Smith*.] Are there a greater number of fishing vessels belonging to Wick, than to any other fishing port upon that coast?—No; I think boats go from all parts of Scotland to Wick during the fishing season.

403. But are there not other parts of the north-east coast of Scotland where there are fishing harbours that are quite as much frequented, or nearly so, as Wick?—No.

404. Not at Dunbar?—Yes, but that is further south; Dunbar is very much frequented.

405. Would there be a stronger claim for Wick as a fishing harbour to have assistance than for other ports in Scotland, such as Dunbar?—I think Wick has always been a very important herring fishing station, and boats go from all parts of Scotland to it.

406. Admiral *Duncombe*.] Your evidence, as applying to the east coast of Scotland, is founded, I believe, upon experience in Her Majesty's service; and I collect that your opinion is distinct in favour of Peterhead as the most favourable spot upon the east coast of Scotland for a harbour of refuge generally?—Quite so.

407. Turn your attention to the coast from the Firth of Forth to the Humber; does your former experience of those seas enable you to form any opinion as to the most eligible spot for a harbour of refuge upon that section of the coast, say from St. Abb's Head to the Humber?—There are several ports upon that coast which were proposed in my days, a long time ago, for a harbour of refuge, and could one have been well adapted towards Hartlepool, it would have been

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an advantage; but as that is so deep in the bay, it is objectionable. A harbour of refuge might be very easily formed at Fileybridge Bay, where I have seen many vessels at anchor during the off-shore gales.

408. Fileybridge Bay being to the east of Flamborough Head?—Yes, eight or ten miles. Our usual anchorage used to be at Bridlington Bay, but that was very objectionable for anchorage, the bay being so deep. It was a matter of very frequent conversation that a harbour of refuge could be very easily made at Filey Bay, and it would form a good one.

409. In your opinion, Filey Bay would be a most desirable spot for a harbour of refuge, taking the north-east coast of England, as between St. Abb's Head and the Humber?—I think so; because when the vessels leave Shields and Sunderland they naturally endeavour to get an offing, and therefore were the wind to draw round to the southward, they would prefer making for Filey Bay were it a harbour of refuge; from its being so far to windward or southward they could easily get to sea when it moderated.

410. I need not ask you as to the immense amount of shipping upon that part of the coast from being immediately in the neighbourhood of the great coal ports?—I have been upon that coast with an immense fleet from different ports, Shields and Sunderland, having just got out, when it moderated after a southerly gale.

411. They are frequently obliged to take shelter wherever they can get it?—Yes, or to stand out to sea, and they are sometimes lost.

412. Do you know the nature of the holding ground, either in Bridlington or Filey bays?—It is very good in both.

413. Sir James Elphinstone.] I understand you prefer Filey Bay, because it is a salient point?—It is a salient point; a vessel would get more easily to sea, clear Flamborough Head, enabling her to make her passage.

414. Mr. Philips.] Have you any general acquaintance with the Western Coast and the Irish Sea?—Not generally with the Irish Sea. I have as far as from the coast of Scotland to the Land's End along the Bristol Channel.

415. Are you prepared, generally speaking, to offer any opinion as to the requirements of a harbour of refuge between Holyhead and the coast of Cornwall?—I should certainly be glad to see a harbour of refuge at St. Ives Bay. I think Milford Haven is easily accessible, and I think that a good harbour of refuge might be made at St. Ives Bay.

416. Mr. Hassard.] Do you consider that a harbour of refuge at Filey would be any advantage to vessels caught in a north-easterly gale off the coal ports?—Yes.

417. Would it not be to windward of them?—If they were to the north of Filey Bay with a north-east gale, they would naturally run for it.

418. Would a vessel either coming or returning go in there, and keep close to the land?—Yes, if she met with a foul wind.

419. But north of Flamborough Head, a vessel coming out of Shields?—They would get a good offing to round Flamborough Head.

420. Does not the destructive gale usually begin at the south-east?—Yes.

421. Would a vessel, if she were off Shields in that gale, under ordinary circumstances, be able to fetch Filey?—No.

422. Where must she run?—She must go the Firth of Forth, or endeavour to get into Holy Island if of moderate draft of water.

423. Would you consider a harbour at Filey to be preferable to one in the bight of the bay, somewhere about Hartlepool?—I think Hartlepool is so very deep a bay, and as they would be very generally deep vessels leaving their ports laden, they would generally get an offing to make a direct course outside of Flamborough Head.

424. Mr. Augustus Smith.] You said just now that you were acquainted with the Bristol Channel?—I have been as high as Lundy.

425. For a harbour of refuge, which should you think would be the best position between the Land's End and Lundy?—St. Ives Bay.

426. Why do you think that would be preferable to one further up the Bristol Channel, Trevose Head, or some more central position?—I think, when a vessel endeavours to get round the Land's End, with a wind coming from the south-west, she would take advantage of a harbour in St. Ives bay, and be so much more ready to get away to make her passage when it moderates.

427. In fact, you think that position would be preferable, because it would be available not only for the trade in the Bristol Channel, but for that great run of



of shipping, which is constantly going round the Land's End from Liverpool and Ireland and the north?—Yes, bound to the Mediterranean and other ports.

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428. Have you ever been employed in conveying vessels round from Milford to Plymouth, and found yourself in difficulties from want of such a place to go to?—I have.

429. Will you describe to the Committee any particular occasion on which that occurred?—On one occasion, I sailed with an 80-gun ship, jury rigged; and when about 30 miles from Milford the wind came round from the north-east to the south-west, with a heavy rain and thick weather, and I was compelled to beat about the Bristol Channel for two days, and I anchored off Lundy; it then became moderate, and I worked her round to Spithead; on two occasions that has occurred with ships of the same class, 80-gun ships.

430. Sir *James Elphinstone*.] Were they in danger both times?—It was not a pleasant position to be in with a line-of-battle ship, with only 80 or 90 men to work her, jury rigged.

431. Mr. *Augustus Smith*.] Under those circumstances, had there been a harbour of refuge at St. Ives, could you have managed to have got there?—No, not then; but I have been in a position it would have been very acceptable.

432. With what vessels?—I have had so many under my foot, from a three-decked ship to the "Jackal," that I can hardly mention one; but very often going round the Land's End, I have been obliged to dodge under the coast of Cornwall.

433. What was the command which you had, which brought you so constantly into that locality?—The appointment was that of master attendant, and generally he is sent round to take newly launched vessels to the different ports; to Plymouth or Portsmouth, or Woolwich, if necessary.

434. As master attendant you were constantly sent to different ports to take round vessels from Pembroke?—Yes, from Pembroke generally; I have brought them from Liverpool and Scotland.

435. So that for many years you were so employed in bringing vessels round from Pembroke to Plymouth?—Yes, for 12 or 14 years.

436. In the course of your experience you found that if there had been some harbour near the Land's End, it would have been a very great object?—A very great object.

437. Were you ever obliged to run back to Milford in consequence of there being no such harbour about the Land's End?—Hardly more than once or twice.

438. But it has happened once or twice that you have been obliged to return to Milford?—Yes.

439. How far were you advanced upon your voyage when you were so obliged to run back?—Forty or 50 miles.

440. You would have been enabled to continue your voyage had there been such a harbour?—Not with those vessels, I could with steamers.

441. In crossing the Bristol Channel is there not a very great outset and indraught of the tide?—Yes, the tides there vary so seriously that frequently captains do not know where they are; they are often quite out of their reckoning.

442. In fact, vessels in going from the Smalls to the Land's End, frequently find themselves, without being aware of it, taken to the east or the west?—To the eastward generally.

443. And others to the west?—I think generally to the east.

444. Has it ever happened to you, when you have been south of the Land's End, that you have been obliged to run round to get shelter upon the north-west coast of Cornwall?—Yes.

445. What position did you run for?—To get under the lee of the land.

446. In case of a wind springing up from the north-west, would you not have been in a very difficult position?—It might have been so; I never was caught so.

447. The wind from the west very often shifts up to the north-west?—Yes, but we kept a good offing.

448. But if there had been a harbour there, that would have enabled you to maintain your position?—It would, and have put my mind at ease as well.

449. Have you studied much the positions in which it is most desirable to have harbours of refuge?—For a general harbour of refuge I see nowhere on



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the east coast of Scotland equal to Peterhead, and on the east coast of England Filey Bay, from its regular depth of water, from six to two fathoms in shore, low water.

450. Holyhead is a harbour of refuge; are you acquainted with that?—I was there some years ago.

451. But not since the new works?—No.

452. Is not one chief advantage of that harbour, that it is in a salient position?—Quite so.

453. *Mr. Dodson.*] Are you well acquainted with the English Channel?—Yes.

454. Have you any suggestions to offer to the Committee with respect to harbours of refuge in any part of the channel?—No; I think in consequence of the Portland breakwater and the other harbours, it is very well provided.

455. Then you have no suggestions to offer to the Committee upon that subject?—No, I have not.

456. *Mr. Kendall.*] You were speaking of some vessel going from Milford to Plymouth?—Yes.

457. Could you fetch St. Ives then or not?—Not when we were obliged to anchor.

458. A harbour there would have been of no use to you then?—No.

459. You went on to Lundy?—Yes.

460. You have been on this coast a good deal?—Yes.

461. You have not surveyed it?—No.

462. Do you know anything of Padstow?—I have been there.

463. You do not know enough of St. Ives or Padstow to give an opinion as to the relative advantages of either?—Not further than seeing them sometimes.

464. What is the most dangerous wind there?—North-west.

465. Suppose with that wind a vessel between the Land's End and Lundy, would she fetch St. Ives on all occasions?—I think if she was a well managed vessel she might get round the Land's End with the tide.

466. Take the whole line between the Land's End and Lundy, would she, generally speaking, be best able to fetch St. Ives or Padstow?—Padstow, more readily.

467. Then, take a vessel exposed to that wind between Lundy and the Land's End, Padstow would be the more readily fetched?—Yes; but St. Ives has the advantage of being the more natural harbour.

468. But still more vessels would be able to reach Padstow than would be able to fetch St. Ives?—I am not well acquainted with Padstow; I could not say that.

469. *Mr. Philips.*] Am I to understand you as expressing an opinion that between Holyhead and St. Ives, on the north coast of Cornwall, there is no additional harbour of refuge required beyond what exists now, Milford Haven?—There is only St. Ives where there could be one.

470. Between Holyhead and St. Ives, do you think that Milford Haven is sufficient for all the purposes of a harbour of refuge?—I think so.

471. *Mr. Liddell.*] You have stated to the Committee that in your opinion Filey Bay is a most desirable locality for the construction of a harbour of refuge for the north-east coast?—I think it is.

472. Have you formed that opinion from an examination of the wreck chart?—I have not; but I do not know that the wreck chart would be a guide for that.

473. You have not studied the wreck chart in forming that opinion?—I have not.

474. Then it is the salient position of Flamborough Head that induces you to think that Filey Bay is the best locality?—Yes.

475. But suppose you were to take an area of coast extending 50 miles to the northward and 50 miles to the south; I think that you would find that the wreck chart pointed to some place to the northward of Filey Bay as a place for a harbour of refuge?—If the masters of vessels were aware that Filey Bay was a harbour of refuge when they left their ports, they would endeavour generally to steer to Filey Bay, whereas they are now sometimes lost in the deep bay of the Tees.

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476. Is it not the case that the masters of vessels, when a gale springs up, almost invariably run for the port to which they belong?—That is the case.

477. Arguing from that, and knowing as we do that the vast majority of shipping employed upon the north-east coast belongs to the ports of Newcastle, Sunderland, and the Tees, would not those two circumstances together naturally point to some locality north of Filey Bay as preferable for the construction of a harbour of refuge?—If a harbour could be made at the mouth of the Tees it would be preferable, but then it would not be so preferable as Filey Bay; being so deep in the bay, vessels could not get away so well.

478. Then in a general point of view you consider that a salient point of the coast is preferable to an indenture of the coast?—Yes; that is my opinion.

479. Admiral *Duncombe*.] With reference to a question put to you by Mr. Liddell as to the Wreck chart showing a greater number of wrecks further off than immediately at Filey Bay, do you consider that is in a great measure attributable to vessels being unable to get there, and constantly running back to the north?—Yes.

480. Mr. *Clay*.] In answer to a question from Mr. Liddell, you stated that a harbour in Tees Bay would be preferable, but that for general purposes you thought Filey Bay was better; I did not understand what you meant?—If there were a good harbour of refuge in Filey Bay which could be easily entered, vessels when they left their ports, if the wind chopped round, could easily get into Filey Bay.

481. If you had to choose between the two, all things considered, would you prefer a harbour at Filey Bay, or at Tees Bay?—At Filey Bay.

482. Have you any connexion with Filey?—None.

483. Have you had any communication with the committee in Filey, who are anxious to be heard to give evidence upon that point?—I have had no communication further than that. I merely heard by chance that such a thing would be suggested, and I said I knew Filey Bay well, and all the coast to Scotland, but no direct questions were put to me.

484. Sir *James Elphinstone*.] Your attendance here is quite accidental?—Quite so.

485. In the course of discussing the harbour of Peterhead yesterday with me, I think you mentioned that you were Master Attendant at Plymouth?—Yes.

486. I suppose you never heard of any of those harbours upon the north; you were not consulted with regard to any of them?—No, I have given up public duty altogether. I never knew that Filey Bay was ever suggested; but a captain of one of the steamers from London to Edinburgh, who has been so for the last 40 years, pointed out to me where there really ought to be a harbour of refuge, and he said it should be at Filey Bay. I told him that was always my opinion when I was cruising on the coast.

487. Admiral *Duncombe*.] That was the captain of a vessel trading between London and Leith for 40 years?—Yes; from that day to this I never knew that there was such a thing in agitation.

488. What is the name of the captain?—Turner.

489. What does he command?—The “*Clarence*” from Leith to London; he has commanded her for 20 years, and has been on the route for 40 years.

490. Sir *James Elphinstone*.] With respect to Filey Bay, you consider its principal advantage is from its being a salient point?—Quite so.

491. Do you like harbours of refuge placed in bights?—Not at all.

492. Do you not consider them very frequently to be a trap?—As I mentioned, I have been with a very large ship in Mount’s Bay, and of course I was always in terror if the wind should chop round that I should not get out.

493. Then in considering the question of harbours of refuge, you would select the salient points in the kingdom as the most advantageous for such harbours?—Yes, for every purpose, for war, and as giving very superior advantages to all vessels.

494. Both for the purposes of defence and navigation?—Yes; because if an enemy is seen off, a ship can be at sea in a moment.

495. The telegraph could inform you of the position of the enemy’s cruisers?—Yes.

496. Mr. *Philips*.] Did you ever experience any difficulty in making Milford Haven?—Not particularly.

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497. Mr. *Hassard*.] Would not the course of a vessel going from London to Leith be very different from that which a vessel would take going to any of the coal ports?—That depends upon the wind.

498. If a vessel went to Sunderland, must she not go into a bight?—She crosses the bight of the Tees.

499. Would not the course of any vessel bound from London to the coal ports, either Sunderland or Newcastle, be much closer into the bight than a vessel going to Leith?—Yes, but that would depend upon the wind and port; if the wind was on shore, he would keep off.

500. I speak of the course, irrespective of the wind; would not his course, if going to Leith, be much further out?—No, they generally keep the land as far as Scarborough, then steer for the Staples and St. Abb's Head.

501. Do they follow the trend of the land in going from London to Leith?—Not exactly from Filey Bay to Hartlepool; but they do to Shields.

502. Would there not be a difference as to the necessity for a port of refuge for vessels trading between London and Leith direct, and vessels going to a port in the bight itself?—No, not as a matter of course.

503. Are not the vessels that are wrecked off the coal ports generally caught by a gale near the ports?—I do not know; it might happen so at times.

Colonel *Richard Clement Moody*, R. E., called in; and Examined.

Colonel  
R. C. Moody, R. E.

504. Sir *James Elphinstone*.] YOU command the Royal Engineers in Scotland?—I do.

505. Have you been much employed there in that capacity?—I have.

506. Have you considered the national defences of Scotland, with a view to strategical points for the protection of the trade and the defence of the coast?—I have considered it under two heads; first, in reference to the defence of the whole kingdom, and next as to the defence of the several commercial harbours. These are two questions involving separate considerations; one, the strategical points, and the other the defence of particular localities.

507. What do you consider, on the east coast of Scotland, to be the point you would select for a fortified harbour of refuge, looking at the possibility of hostilities with northern powers?—I have not the least hesitation in saying Peterhead decidedly, before any other.

508. You could erect batteries, I suppose, at Peterhead, on the south head of Keith Inch, and Salter's Head, so as to effectually protect shipping in the proposed harbour?—Yes.

509. In fact, so that no hostile vessel could throw shot anywhere near them?—Yes. Those two points, if fortified with batteries and heavy ordnance, would keep all ordinary vessels well to sea. They could not come in, except under great peril; they would of course attempt it, but it would be with considerable loss.

510. Then you consider Peterhead is the best point in that view on the east coast of Scotland?—I do. Perhaps I might make clear in a few words what I think upon this subject. I made a great many inquiries through Scotland, in travelling about, upon these particular points. I noticed that the very saliency of Peterhead point was an element of great importance strategically. I found that the harbour of refuge which could be constructed there, would enable vessels to get in or out with any weather, and at any time. Assuming that to be a fact, then Peterhead plays a most important part; because all merchant vessels traversing the North Sea on that coast, chased by an enemy, could make that harbour with safety; or vessels of war, stationed there for their protection, could get out to sea to intercept enemy's cruisers, or to convoy vessels passing by. Then, with regard to the local points, I noticed there was an island called Keith Inch, now forming the outer part of Peterhead, which stands in advance of it, and which it would have to protect it, so that vessels coming in or going out would come in the rear of this protection. I found, on an examination, too, of the spot, that the very configuration of that island would enable me to place batteries at the two ends that would cross their fire, and make it exceedingly strong. Then you could go on increasing your defence and your batteries in other parts, but in the first place, one group of batteries in connexion with each other on Keith Inch, would be sufficient to protect the harbour.

511. Have

511. Have you ever considered in a mercantile point of view the importance of the place for ships to call at from the Baltic, in connexion with the strategical considerations?—I have, and decidedly the prevailing opinion of everybody I asked was in favour of Peterhead; they considered it exceedingly important as a place of call. A question arose with regard to Wick. Of course, it is a point for the Committee to consider; but I submit that if the harbour of refuge is to be of a large area, the relative local advantage as to defence is in favour of Peterhead; but if it is to be very small, and high up in shore, then the advantage is in favour of Wick, from the batteries being so much in advance. But this does not in the least affect the greater strategical importance of Peterhead. It would remain the same.

512. Mr. *Liddell*.] Professionally, is it your opinion that a harbour designed upon that plan (*pointing to one on the wall*), in a national point of view would be sufficient to protect any considerable fleet?—No, but I do not look upon it in that light; I look upon it, as a place for a large commercial fleet to find refuge in, and for the vessels of war on the station.

513. Is that harbour so depicted sufficient for that purpose?—I should think quite so for the commercial shipping to come into, but not for a large fleet such as attacked the Baltic.

514. That harbour would not be sufficient for the protection of a large Baltic fleet?—As the rendezvous of a large Baltic fleet, I should think not; that is quite a nautical point, however, as to area; but I think it would not be sufficient.

515. Mr. *Grant Duff*.] You mentioned an island called Keith Inch, you told us it would be an important place to erect batteries upon; is it not also singularly well situated for a dépôt for Government stores, being cut off from the land as it is?—It has a certain amount of advantage as against a land attack, but I should not consider that to be a strong element in the general question. If a dépôt for stores be placed on Keith Inch, it would have to be rendered bomb-proof against shells from a hostile fleet approaching the coast. You bring them too near your enemy.

516. On the whole, do you know any better point for such a purpose on the north-east coast of Scotland, provided the Government were willing to go to the expense of making it, looking merely at the site?—I am not prepared to say that; I should only consider it the best taken in conjunction with all the other advantages in a naval point of view; but if you were merely to ask me to select a site for a dépôt for naval stores, I should put it as far inshore as I could.

517. Have you seen Mr. Stevenson's plans for a harbour?—I have.

518. Do you, as an engineer, think well of them?—I do, as far as I am able to judge; I have studied the question of Peterhead much more than I have Wick, with regard to the formation of a harbour, seeing at once the superiority of Peterhead for what I had in view. I think Peterhead offers great advantages.

519. Mr. *Hassard*.] Is the configuration of the land in the immediate neighbourhood of the town of Peterhead such, that graving docks could be easily constructed there?—I have not studied it on the ground much with that view; I would not advise you to rely much upon my opinion in that respect.

520. Would you not consider it desirable to have a place next to a harbour of refuge, where a vessel coming in disabled should be able to be repaired?—Unquestionably, and I have no doubt along that beach it would be so.

521. Would Wick have any advantage in that respect?—I should think none over Peterhead.

522. Mr. *Augustus Smith*.] Viewed as a position for ships of war to be used for the protection of our trade in those seas, looking at the map of the north coast of Scotland, which should you think is the best position, Peterhead as a salient point projecting far out into the ocean, or a more retired position near the Pentland Firth?—Unquestionably Peterhead.

523. Do you think that foreign ships would be more likely to approach Wick or Peterhead?—That is a nautical point, but I should imagine from the information which I gathered in all my inquiries, that more vessels by far approached the turning point at Peterhead, than went inwards to Wick.

524. Mr. *Traill*.] Was your local information received at Wick or at Peterhead, or at both?—At both; but Peterhead I made much more my study than Wick. When first I took up the map of Scotland, I put my finger on Peterhead at once as a strategical point of such evident importance.

Colonel  
R. G. Moody, R.E.  
25 February 1858.

Colonel  
R. C. Moody, R. E.

25 February 1858.

525. Do not you consider that Wick from its position, being a point of departure east and west, might be more convenient than Peterhead for the protection of mercantile vessels by ships of war?—No; because I should conceive your position for what I should call a naval harbour, should be to enable you to get out quickly to operate upon the cruising ground, which you could do better from Peterhead than you could from Wick.

526. An enemy's ship might be either east or west, and Wick being a central point in that respect, would it not be more convenient for taking them either way than Peterhead, which lies to the eastward?—On the other side of Pentland Firth we already have a fortified harbour, the harbour of Long Hope; it is defended by batteries, and 40 years ago there were always two vessels of war in Long Hope; that would be the natural place for a naval position.

527. I am speaking merely as to a comparison between Peterhead and Wick as a naval station?—Yes; but Long Hope should always be held at the same time, because Peterhead or Wick alone would not be sufficient. Long Hope would always have to be held at the same time.

Lieutenant *Charles Thomas Cerjat*, called in; and Examined.

Lieutenant  
*C. T. Cerjat*.

528. Mr. *Liddell*.] WHAT are you by profession?—A lieutenant in the Royal Navy, in command of her Majesty's ship "Jackal," stationed on the coast of Scotland.

529. Have you been employed upon the coast of Scotland?—I have, and am employed there now.

530. Where are you stationed?—On the east coast of Scotland.

531. Have you been there for the protection of the fishing?—I have, for the protection of the fishing.

532. Sir *James Elphinstone*.] The harbour of Wick is a very important fishing station, is it not?—Very important.

533. It is very desirable that the accommodation for fishing-boats, and the vessels attending upon them, should be increased; is that not so?—Decidedly so.

534. But as a general point for the accommodation of the merchant shipping bound for Pentland Firth or otherwise, is it a port of importance?—It is of importance.

535. Do many ships take refuge there?—Not as it is at present.

536. Would they do so if there was a harbour of refuge to a much greater extent?—Many would.

537. Suppose that harbour of refuge was carried out at Peterhead, what would be the effect?—I think a very great number of vessels would take refuge there.

538. Would not Peterhead become a place of call for ships from the Baltic, and for the general trade?—It would be so; it is so now in a great measure.

539. Viewing it in both aspects, in a national point of view and in a local point of view, would not Peterhead be the most advantageous point upon the east coast of Scotland at which to construct a harbour of refuge?—I think it would.

540. That is your professional opinion?—It is.

541. It is of easy access?—It is of easy access.

542. Easy to get away from in any state of wind?—Easy to get away from in any state of wind.

543. Capable of being defended?—It is.

544. Possessing the advantage of being the nearest point to the Baltic?—It is so.

545. Do you generally concur in the evidence given by Captain Henderson to the Committee?—I do.

546. Mr. *Augustus Smith*.] In what capacity have you been employed on the north-east coast?—To protect the fisheries.

547. Are you well acquainted with the different fishing ports on the east coast of Scotland?—Pretty well.

548. Can you give any information as to the number of fishing boats by which the different ports are frequented?—I cannot.

549. Mr. *Liddell*.] Over what period has your service upon that coast extended?—Two years and five months, I think.

*Jovis, 11<sup>o</sup> die Martii, 1858.*

## MEMBERS PRESENT.

Mr. Baring.  
Mr. Clay.  
Mr. Dodson.  
Mr. Grant Duff.  
Admiral Duncombe.  
Sir James Elphinstone.  
Mr. J. H. Gurney.  
Mr. Hassard.

Mr. Kendall.  
Mr. Liddell.  
Mr. Macartney.  
Mr. Augustus Smith.  
Sir Frederick Smith.  
Lord A. Vane Tempest.  
Mr. Traill.  
Mr. Wilson.

JAMES WILSON, Esq., IN THE CHAIR.

Rear-Admiral Sir *James Clark Ross*, called in; and Examined.

550. *Chairman.*] WILL you state to the Committee what your profession has been?—I am a Rear-Admiral in the navy.

551. Have you any knowledge of the east coast of Yorkshire?—I have no personal knowledge of any part of it excepting immediately in the neighbourhood of Flamborough head: viz., the three bays of Filey, Bridlington, and Scarborough.

552. Filey Bay lies between Scarborough and Flamborough Head?—Between Scarborough and Flamborough Head; it is some years since I was there, but I was so struck with the capabilities of making a good harbour there that I wrote to Sir Francis Beaufort upon the subject, and he requested me to make a special examination and let him know my opinion as to its practicability, and at the same time he sent me down two excellent plans of it, made by Captain Washington. The plans so sent to me were returned to him with my report, but it was merely a private, not an official communication; I have here a rough plan of what I then sketched out, which will show the idea that I then entertained.

553. In consequence of that request you examined the bay?—I examined the bay most minutely, and inquired into all its capabilities of making a good harbour, more especially for a fleet, as a naval station.

554. Not as a harbour of refuge?—Not as a harbour of refuge at that time.

555. Has your attention been called to it more recently in its character as a harbour of refuge?—It has since the question has been under consideration, and I have come to a very decided opinion respecting it as a harbour of refuge.

556. At present it is protected from the north-east by natural rocks?—Yes, but that is a very slight protection; it is a very good base from which to push out a breakwater to protect the whole bay.

557. Then you would recommend to throw out a large breakwater to protect it from the north-east wind?—It would depend upon whether you require it as a naval station or simply as a harbour of refuge. If you intend to make only a harbour of refuge there, a small pier would do; but for a naval station it would be necessary to extend the breakwater to a considerable distance.

558. Be good enough to confine your observations to its character as a harbour of refuge, as that is the matter before the Committee. Would it not be very much exposed to the south-east gales?—If a breakwater were properly formed it would not be at all exposed.

559. But to protect it from a south-east gale or a due east gale, the breakwater would have to be thrown out a long way?—Not anything like so far out as it would have to be if required for a naval station.

560. What is the character of the coast?—The line of coast there is a sandy beach the whole way along the shore for miles; a fine, a firm sand.

561. It is not rock?—It is not rock.

562. Is there a great depth of water?—One great advantage of the bay is that the water deepens very gradually as you go from the coast, so much so that if you threw the breakwater out to a moderate extent without going very far out,

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Rear Admiral  
Sir J. C. Ross.

11 March 1858.

Rear-Admiral  
Sir J. C. Ross.

11 March 1858.

you would get a very good depth of water, and sufficient space for 20 or 30 sail of the line.

563. Have you seen the report that has been sent to this Committee, with a map?—Yes, I have seen that report.

564. Have you got the map before you?—Yes, I have a copy of it here.

565. You observe the breakwater marked upon that map?—I do.

566. Is that the breakwater that you referred to which would be required for a harbour of refuge, or that which would be required for a naval station?—That would be quite sufficient for a harbour of refuge, but it would be inadequate for a naval station.

567. But for a harbour of refuge you think it would be enough?—For a harbour of refuge it would be enough.

568. Do you know the length of that breakwater?—I do not, but I suppose it to be about a mile from the end of the Brigg.

569. That breakwater, as laid down upon the plan, would defend the harbour from a due east or a north-east wind?—From a due east or a north-east wind it would, but it would be insufficient for a south-east wind; for a south-east wind it would have to come down more than is projected, and a little further along; if it were projected a little further along, the entrance would be completely protected by Cape Bull and Buckton Cliffs.

570. A harbour of refuge in this spot would not be of any use to vessels which had gone beyond this point on their way towards Newcastle or Sunderland?—No; but a harbour of refuge there would be of the greatest importance, and most probably be the means of preventing three-fourths of the wrecks that now take place near the ports of the bay, because they mostly arise from vessels working up to Flamborough Head, and being driven back into the bight of the bay are wrecked in seeking their own harbours again.

571. Driven back by the north-east wind?—Driven back by the south-east wind, or the east wind.

572. You are speaking of vessels going southward?—Yes.

573. But vessels going northward would not be able to use that harbour as soon as they passed this point?—They would be able to use that harbour if they got passed that point with a north-east wind; they would run into Filey as a harbour of refuge.

574. Would they not have some difficulty in taking that harbour as it is projected, with a strong north-easterly gale?—Not the least; and with that wind the breakwater would at any rate keep the sea off the beach, so that if necessary they might beach with safety upon the firm sand.

575. The beach is composed of hard sand?—Firm sand.

576. And there is no rock at all?—There is no rock at all, except in one part of it. I do not think it is laid down here; there is a very small space that is rock.

577. Where would you procure your material for making the breakwater?—There is abundance of material close at hand; and what we call the Filey Brigg runs out to a certain extent, probably half a mile.

578. I see the shore here is marked as hard sand, but beyond the shore is not the coast all high rock?—To the extent of five or six miles it is firm sand; beyond that I believe it is rock. Filey Brigg is already dry at low water, and there is an immense mass of material lying upon the outside that merely requires to be lifted and placed upon the Brigg to bring it up to the high water level, which could be done at a comparatively small expense; and then afterwards, with a railway running along it, the hill at the back would supply material to project the breakwater as far as you choose to carry it out.

579. Admiral *Duncombe*.] That material which you allude to is hard rock?—Hard oolitic rock.

580. Suitable for a breakwater?—Yes.

581. Can you tell the Committee what is the nature of the anchorage, the holding ground in the bay?—It is stiff clay, under a very thin layer of sand; a firmer anchorage could not possibly be found anywhere.

582. The holding-ground is particularly good?—The holding-ground is particularly good.

583. You are aware, I believe, that there is a railway to Filey?—Yes, I am aware that there is.

584. In the event of vessels putting in there in distress, they could easily have



have access to the great foundries, both at Beverley and at Hull, for any repairs that might be required for their machinery?—I should think so, certainly; but no doubt, if this became a rendezvous for the North Sea fleet, there would be naval works established and a complete dockyard.

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585. Are you able to state the relative proportion of laden vessels lost, compared with the light vessels going home?—I have seen it stated that there are four laden vessels lost to one light vessel, which is contrary to what sailors generally suppose, and would be contrary to what would be the case if it depended merely upon the embayment.

586. Will you state the reasons for that?—The principal reason, I think, for that is, that vessels leave the coal ports as soon as they are loaded, because it is important to them to get thus far on their voyage; and even though it be a southerly wind, they will beat along the coast as far as Flamborough Head, where it is not uncommon to see 200 or 300 vessels dodging about the head, waiting to get to the southward; and the wreck chart shows at that spot the occurrence of an immense number of collisions. Out of 57 casualties marked upon the chart, 30 were occasioned by collisions, or rather more than half. Vessels that have got to Flamborough Head are frequently driven back; being caught by an easterly gale, and then they are obliged to run for their own ports in the bight of the bay. Now, if there were a harbour of refuge in Filey Bay, they would then go into Filey Bay, and wait there till the wind changed, and be ready to proceed on their voyage instead of going back from an advanced position.

587. In fact, a great number of those vessels which are shown upon the wreck chart as having been lost from time to time have only got as far as south as Flamborough Head, and have been obliged by stress of weather to run back?—I think with more than three-fourths, at any rate, that has been the case.

588. You are aware that collisions are very numerous off Flamborough Head?—Yes; I have just stated that I am aware that out of the number of wrecks that appear off that head upon the wreck chart there is more than half of them due to collisions, and that for any of the coal ports, where there are 100 wrecks marked upon the chart, there are not more than five or six from collisions; it arises from so many laden vessels waiting about Flamborough Head for a change of wind, and the light vessels coming down to make their port run into those vessels in the fogs that prevail with a southerly wind.

589. Do you know sufficient of the east coast generally to be able to state whether, in your opinion, there is any spot more desirable for a harbour of refuge between the Humber and the Firth of Forth than Filey?—If a harbour of refuge were made at Filey it would most probably prevent three-fourths of the wrecks which annually take place in the bay. But I think that it would be desirable to make another harbour more to the leeward for the sake of the other fourth of the ships, but it would be a less important harbour than that of Filey.

590. Lord A. V. Tempest.] Do you consider that a harbour at Filey Bay would afford sufficient refuge, and prevent a great number of the shipwrecks and loss of life which take place upon that part of the coast?—I think it would be the means of preventing at least three-fourths of the wrecks which take place now.

591. I understand your evidence rather to apply to this, that if a refuge harbour were made at Filey, it would prevent a number of the collisions that take place at Flamborough Head?—It would, because it would no longer be necessary for vessels to beat about off the head.

592. Would coal vessels when to the north of Filey Bay be able to obtain refuge in a harbour at Filey?—No; if they were caught there they would not generally; it would only be useful to vessels having advanced beyond Filey.

593. It would avoid the necessity and danger of their running back?—It would avoid the danger and necessity of their running back, and also of running into a deep bay.

594. Is there any other point upon that part of the coast that you would recommend to the Committee for the construction of a harbour of refuge; Hartlepool for instance?—I do not know anything about the other parts of the coast, nor do I know anything of Hartlepool as to its capabilities of being made a harbour of refuge, but, *cæteris paribus*, its geographical position is better for a harbour of refuge.



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595. Do you consider Hartlepool preferable as a harbour of refuge to Filey Bay, from its position?—No, I do not, under the peculiar circumstances. But I think it is desirable that there should be a small harbour at Hartlepool; but it is still more important that there should be one at Filey Bay. I think it would prevent more wrecks than a harbour at Hartlepool.

596. Is it not the case that ships caught in stress of weather to the south of Flamborough Head can obtain all the refuge that is necessary by going to the Humber?—With a north-easterly gale, but with an easterly gale the Humber is not a very easy place to make.

597. Am I to understand that a harbour at Filey would generally be attainable in an easterly gale?—It would be attainable in a gale from the north-east, south-east, or east.

598. Would a harbour at Filey Bay be of any use to a ship which was caught in a gale off Shields?—Not with a south-easterly gale.

599. With the wind blowing a south-easterly gale on any part of that coast, either to the north or south of Shields?—In a south-easterly gale upon that part of the coast a vessel would stand off to sea.

600. Therefore the construction of a harbour at Filey would afford no refuge to a ship caught in a south-easterly gale upon that part of the coast?—Not in a south-easterly gale, if the vessel were to leeward of the harbour, but then it would not be wanted.

601. Have you ever turned your attention to Mr. Calver's Report, made to the Admiralty?—No.

602. I believe that Filey has never been recommended for a harbour of refuge in any of the reports which have been made upon that part of the coast?—I was much surprised that it was not mentioned to the Committee during the last Session of Parliament. It is the place the most capable of being made a fine harbour, so far as I can judge from maps or plans, along the whole line of coast.

603. Except that it would not afford refuge for ships upon the north-eastern part of the coast during a south-easterly gale?—No, certainly not; but ships do not require, with a south-easterly gale, a harbour of refuge upon that part of the coast. It is only with a north-easterly gale that they require it.

604. A south-easterly gale is very destructive upon that part of the coast, is it not?—I am not aware of that of my own knowledge.

605. Sir *Frederick Smith*.] Will you state to the Committee what brought you into connexion with Filey?—I went down there with my family, for the sake of the sea air, having heard that it was a quiet and pleasant watering place.

606. Were you there for any great length of time?—In two following years for four or five weeks each time.

607. Were there any gales while you were there?—No; it was during the summer time. There were two or three south-easterly gales; not very strong.

608. What is the formation at Filey Brigg?—It is a hard oolitic grit rock.

609. What actual water do you presume it has been formed by?—That is a geological question. I am not a sufficient geologist to answer that question with confidence.

610. Is there any tendency to silt up in the bay?—Not the slightest in the bay; there is hardly the possibility of it. There are no streams to bring down foreign matters into the bay, which is the principal cause of silting up.

611. Then you consider that the soundings will remain as they are at present?—I think so.

612. And that no alteration would be caused by a breakwater?—I think not.

613. You stated that it was desirable to have an Admiralty station at Filey?—Yes.

614. Judging by this plan, does it appear to you that there is any space for it?—The very circumstance of removing the hill at the back would make a sufficient space for any works that might be necessary. The removing of the hill to form the breakwater would leave an ample space for the Government works.

615. Then by that work you would effect two objects; namely, a harbour, and space for Government works?—Yes.

616. Have you examined the wreck chart with a view to ascertain that collisions do take place there?—The number of wrecks off a place is a function of its commerce to a certain extent. Wherever there is a great number of ships passing in and out, there of necessity a great number of wrecks will occur.

617. If there be no commerce at Filey, then, taking your view, no harbour of

of refuge will be necessary there?—The usual cause of the number of wrecks off those harbours arises from vessels being obliged to run for them in bad weather. A harbour at Filey would prevent the necessity of their running back, by sheltering them, and on this account it is of the first importance.

618. Would that not be an argument in some degree against the formation of any harbour of refuge?—No; for, although there are no harbours of refuge now, we find that vessels run for the harbours they have left, by which wrecks are occasioned; but if there were harbours of refuge, they would then run for those harbours of refuge, and would not be wrecked.

619. Then you would require a great number of harbours of refuge to give shelter for vessels going both ways?—The best thing is to provide a harbour that would prevent the greatest number of wrecks. They arise chiefly from vessels running back into the bight of the bay, from Flamborough Head, for harbours not fitted to receive them. A harbour at Filey, and a harbour about Hartlepool, or somewhere about that neighbourhood, would be an ample protection for the whole of that line of coast, I think.

620. In point of fact, Filey is not a port of commerce?—Filey is not a port of commerce.

621. Whereas Hartlepool is?—Hartlepool is.

622. Would it not be better to establish a harbour of refuge where vessels would be likely to trade, rather than where they are not likely to trade, but to keep off the coast?—I think it would be better to form one harbour at Filey, because all the vessels that come out of all those ports, and all the vessels that have advanced a certain distance to the southward, assemble under the lee of Flamborough Head, in the immediate vicinity of Filey, where great destruction takes place by frequent collisions. If you look at the chart, you will see that the greatest number of collisions are off Flamborough Head, whereas at some of those ports they rarely occur; but those wrecks occur from their not having a sufficient harbour to run to when they leave Flamborough Head. If they could run to Filey Bay, there would be protection for 400 or 500 vessels there at a time.

623. Is not Bridlington Bay a good place?—It would not do with a south-easterly wind.

624. What protection would vessels have behind the breakwater at Filey Bay with a south-easterly wind?—Perfect protection if the curve were brought more down, which might be done, and still leave sufficient depth of water for colliers.

625. The breakwater as shown gives protection only from the north-easterly wind?—At present from north-easterly winds only; but it breaks the sea off the beach, and allows vessels to run upon the sand at high water, without injury.

626. You would require to have another arm running to the southward, would you not, to protect vessels from the south-easterly wind?—I think it would be better to extend the same arm somewhat more in this way (*explaining the same*).

627. Would it not be very difficult to get in then with a north-easterly wind?—Not in the least; there would be then room for 50 sail of the line.

628. Sir James Elphinstone] I presume vessels would rather run into Filey Bay than dodge under the head?—Certainly, if they had a harbour to go to.

629. In a southerly wind they keep dodging about under the head?—They keep dodging about under the head.

630. Of course the vessels would rather run into Filey than keep out in the bay?—Certainly.

631. Does your opinion with respect to Hartlepool relate to the local trade of the coal ports, or does it relate to the trade of the kingdom generally?—Only to the trade of the coal ports and not to the general coasting trade. Filey would be a much better place for a harbour of refuge for the general coasting trade than Hartlepool, because the line the coasters keep is far to the north-eastward of the line that covers the coal ports.

632. Looking at the necessity of having a harbour somewhere about there as a matter of national advantage, to suit the trade to the Baltic and to the north of Europe, as well as the trade running through Pentland Firth, do not you think that Filey Bay is perhaps the best point upon the east coast of England that could be selected for that purpose?—Certainly Filey Bay, and together with a bay near Duncansby Head, Wick, for instance, would be of first importance for purposes of strategy merely. They would shelter the whole fleet necessary for the defence of the entire eastern coast line of Scotland and England.

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633. I suppose

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633. I suppose the position of Filey upon a salient point of the coast influences your opinion in that particular?—Yes; that is a material advantage as a naval station.

634. You consider that salient points upon the coast are the most advantageous for harbours of refuge, where proper positions can be got, I suppose?—No, not as harbours of refuge; as harbours generally for naval purposes the salient points are the best; but for harbours of refuge I prefer the depths of a bay.

635. Do not you consider that when you can get a position like Filey Bay in the neighbourhood of a salient point, where there are necessarily very great numbers of ships in certain states of wind and weather congregated together, that it is a very great advantage to the trade of the kingdom to have such a point as that where you can have a harbour of refuge into which ships can go in stress of weather?—It is of the greatest possible importance.

636. Have you ever turned your attention to Peterhead as a point which is of any importance?—No, I have not; I have no knowledge of Peterhead, except merely from plans and maps; I have anchored in the south bay there many years ago.

637. Are you aware that that bay is very much of the same character as Filey Bay, near a salient point of the coast, with the means of being closed and possessing a sufficient depth of water for the purposes of a squadron?—That I was not aware of.

638. You do not know anything of Peterhead of your own knowledge?—I know nothing of Peterhead of my own knowledge; the only part that I know anything thereabout is Wick; I examined that bay with the view of judging of the practicability of making a harbour there.

639. Is there not the harbour of Long Hope in the Orkneys?—Yes.

640. Would not that supersede to a great extent the necessity of making a harbour at Wick?—The entrance to Long Hope is intricate; you have to enter Pentland Firth, and to cross the stream, which is rather a dangerous operation; and it would be far more advantageous if you could have your fleet at a station like Wick, than it would be to have it at Long Hope.

641. There is a very great resort of fishing vessels to Wick, is there not?—I believe at some particular parts of the year there is; for two or three months in the year.

642. Would it not be a matter of great importance to provide protection for those fishing vessels?—It would be an act of great humanity; there is a great loss of life every year there for want of a harbour.

643. Taking the east coast of Scotland generally with regard to the trade to the Baltic and the northern ports, would not a harbour at Peterhead be a matter of more national advantage than a harbour at Wick?—No; because I think that any of the Baltic powers proposing to attack any of our western harbours, Glasgow, Belfast, Dublin, or Liverpool, would run through the Pentland Firth; with a fleet at Wick it would be impossible for them to go through without detection.

644. Mr. Hassard.] Looking at a harbour of refuge as calculated to avoid the loss of vessels which annually takes place, would you not think that a harbour of refuge ought to be near the point where such loss usually takes place?—That depends upon the main cause of the losses. The cause of the losses in these cases is the necessity which the vessels are under to run for those harbours.

645. If you look at the wreck chart you will see that an enormous number of vessels are wrecked in the neighbourhood of Sunderland and Shields?—There are a great many.

646. Would not, then, a harbour of refuge in the neighbourhood of Hartlepool be more likely to obviate those losses than one at Filey?—I think certainly there should be a harbour at Hartlepool or in that neighbourhood. But I think that a harbour at Filey would be the means of preventing three-fourths of the wrecks that at present take place at the ports in the bay. There should be another harbour at Hartlepool for the sake of the remaining fourth that cannot get into Filey.

647. Do you think that a harbour at Filey would save those wrecks which take place annually off Sunderland?—The greater portion of them.

648. Are they generally laden vessels?—They are generally in the proportion of four laden vessels to one light one.

649. Suppose there were a harbour of refuge at Hartlepool, could not a vessel

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at Filey run for it?—That would depend upon the wind. With a south-easterly wind of course she could fetch Hartlepool, or even with an easterly wind; but not with a north-easterly wind.

650. With a north-easterly wind, could she not go round the head and be in Bridlington Bay?—If a vessel were caught with a north-easterly gale on the north side of the head she could not get round it.

651. She must be very close to the bill of the head to be able to reach into Filey?—They always try to keep close under the head; there are sometimes 800 or 700 vessels beating about, and at anchor close to the point from Speeton to Flamborough Head.

652. But it is your opinion that, even if there should be a harbour of refuge constructed at Filey, there still should be one at Hartlepool?—I think so; certainly.

653. Mr. *Clay*.] A very large proportion of the wrecks upon this coast are colliers, are they not?—It is especially colliers I speak of.

654. I think you said that some three-fourths of those colliers were loaded colliers?—Four-fifths.

655. And they meet with their great difficulty almost immediately on the outset of their voyage?—On reaching Flamborough Head they very often go out upon their voyage with a southerly wind, because they are protected as far as Flamborough Head. They can beat up in smooth water till they get up to the head; but the moment they open the head they cease to make any way to the southward, so that they stop there for a change of wind.

656. Then when there is a wind sufficiently fair to give them a good offing, they leave their ports with the idea that they shall be able to run up to Flamborough Head?—Very often they leave their ports without the prospect of making Flamborough Head; but they want to get so far upon their voyage as to be able to take advantage of a favourable wind when it comes. Now, if there were a harbour of refuge at Filey they could go in there at once and anchor.

657. If they find the wind southwards upon them, or the severity of the weather increases, so that they cannot weather Flamborough Head, they are obliged to stand off and on, or to run into the nearest tidal port, and make the best shift they can. Is that an accurate description of what generally happens with vessels in distress on that part of the coast?—Yes, they stand off and on until the weather becomes too severe for them to hold their own; then they are driven back and must make for a harbour.

658. They are then obliged to run for some port of refuge?—Yes.

659. And many are lost in doing so?—Yes.

660. And is it your idea that many of those losses would be prevented by making a harbour of refuge at Filey?—Yes, every one of them that was beating about under the head would find a refuge in Filey Bay; they would not then have occasion to run back, and incur the risk of loss that frequently happens in doing so.

661. Can you state how many vessels have been known in one gale, or at one time, beating about in this way off Flamborough Head?—I have been beating about there myself in a man-of-war with about 200 sail at one time.

662. Have you ever heard of a much larger number being there at once?—Yes, a much greater number.

663. Of course all the vessels leaving the coal ports must pass Filey Bay?—Yes, all of them must.

664. But those south of Hartlepool would not pass Hartlepool?—No.

665. All the vessels from all the ports would pass Filey?—All of them must pass Filey.

666. But some of course do not pass Hartlepool, so that in that respect Filey must have an advantage as giving this convenience to the whole of them?—Yes; except that some vessels that might not be able to get into Filey Harbour ought to have a harbour at Hartlepool under their lee for their safety.

667. If there were to be only one harbour of refuge, and you were driven to choose between Hartlepool and Filey, which would you prefer?—It would be a difficult thing to decide, because you would inevitably leave then one-fourth of the shipping to destruction they are now exposed to; one-fourth of the annual number of wrecks you would still leave unprovided for if you made a harbour at Filey, and without any means of safety. It is essential that a small harbour should also be made at Hartlepool, or thereabouts.

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668. Mr.

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668. Mr. *Liddell*.] I want a little explanation with regard to the vessels above Flamborough Head. You say that they are loaded vessels?—Nearly all the vessels that are beating about under Flamborough Head are laden vessels; four-fifths of the wrecks that occur upon that coast are laden vessels, and one-fifth are light vessels.

669. Can you explain to the Committee why that is so. You are aware of the very large proportion which the vessels belonging to the three harbours of the Tyne, the Wear, and the Tees, bear to the whole amount of the vessels navigating that coast?—I am aware of that.

670. Those vessels of course must return, and I presume you are aware that they do not usually return with cargoes?—They come back in ballast.

671. I want to know how it occurs that four-fifths of the vessels which are wrecked in the neighbourhood of Flamborough Head happen to be loaded vessels; what becomes of the light vessels?—The light vessels never beat about under Flamborough Head; they have no necessity to do so, and are therefore not exposed to the same hazard.

672. You are aware that the light vessels, the return vessels from the port of London, go back in large convoys together. I want to know what would occur to a fleet of light vessels caught in a north-easterly gale anywhere to the north. I am supposing that the larger proportion of them belong to ports northward; would Filey Bay be of any service to them if caught in a north-easterly gale?—If they were north of the head they could run back into Filey Bay.

673. Filey Bay, looking at the map, would appear to be, in reference to Flamborough Head, completely in the bight of the bay?—It is in the bight of the bay.

674. Would vessels bound northward taking refuge in Filey Bay have any difficulty in getting out again, because it is equally important that they should be able to get out as it is they should get in?—They could get out of Filey Bay with greater facility, perhaps, than they could from any of their present ports.

675. You know that a south-easterly gale is very much dreaded upon that coast, do you not?—Yes.

676. Supposing a light vessel to be caught in a south-easterly gale to the northward, it could not make Filey Bay?—It would depend upon where the vessel was.

677. Supposing her to be caught anywhere between Filey and any point you please, say Long Fern Island, with a south-easterly gale, which you admit is a very dangerous gale upon that coast, could she make Filey Bay?—With a south-easterly gale she would be able to stand off the coast from Flamborough Head; she would be able to clear the coast.

678. Are light vessels, of the description of those that navigate those seas, able to keep to sea always?—They would be obliged to keep to sea in those cases.

679. Are they not driven ashore in vast numbers?—They could hardly be driven ashore if they were at Flamborough Head.

680. I suppose them to be north of Flamborough Head?—If they were north of Flamborough Head, the coast line runs south-east there, so that it is not possible for them to be driven upon the coast along the line in which the wind is blowing; they could be put on the starboard tack, and stand out to sea.

681. As a general question with regard to the construction of harbours of refuge, do you approve of their being placed in the bights of bays, or at salient points upon the coast?—This is a special case. The great advantages of Filey depends upon special circumstances. As a general proposition, certainly the bight of a bay for a harbour of refuge is to be preferred.

682. Have not vessels taking refuge in a harbour situated upon a salient point of the coast far greater facilities for entering and getting out of that harbour?—There is no doubt that they have, but vessels that are in a bay cannot avail themselves of a harbour that is at one of the points of it with the wind blowing directly into it.

683. But, when once a vessel becomes embayed, has she not greater difficulties in making any particular spot in that bay than she would have if she were making for a salient point?—It depends upon what distance she may have to run, or how the points lie for her; but, generally speaking, the bight of a bay is the most likely spot to receive the whole of the vessels that are embayed between the two heads of it. If a harbour of refuge were at either point of the bay

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bay very few vessels could get into it if they were embayed, but all of them could get into a harbour in the bight of the bay.

684. You have spoken of the site for a breakwater which you described as a long bank of sand?—Not a bank; there is no bank.

685. What is the nature of the stratum, whatever it is, upon which you propose to construct this breakwater?—As soon as Filey Brigg rock ceases, then commences a hard clay, covered with a thin layer of sand.

686. The substratum is clay, and consequently firm when covered with water?—Firm at all times.

687. Is it dry at low water?—It dries from the shore to a certain distance; but at the end of the present brigg, as they call it, the sand does not dry; there are, I suppose, eight or ten feet of water there at low water.

688. But it is not in the nature of a quicksand?—Not at all; it is perfectly firm.

689. You have also said that there is abundance of material to be had for a breakwater?—Abundance of material; any quantity; perfectly at hand; you may run it along the quay and tumble it over to any extent; you may extend the breakwater five or six miles if you wish.

690. Is that stone suitable for the construction of a breakwater of this description?—So far as I can judge it is, it seems a very hard rock.

691. Mr. *J. H. Gurney*.] I think you express a somewhat strong opinion that, looking at the great number of wrecks between the Tyne and Flamborough Head, that coast cannot be sufficiently provided with refuge by any less number than two harbours of refuge?—Certainly not.

692. And you are also of opinion that Filey affords the best place for the southernmost of those two harbours?—Yes, and the more important of the two harbours.

693. And the wrecks which would be prevented by a harbour at Filey are, in part, those which now appear upon the chart as occurring off Sunderland and off Hartlepool?—Exactly so.

694. Was the great proportion of those wrecks vessels which had been driven back, but which would not have been driven back, but would have taken refuge at Filey had a harbour existed there?—Certainly.

695. Then, in addition to that, it would prevent a great portion of the wrecks now occurring by collision and otherwise off Flamborough head?—Yes, it involves all the three points.

696. Do you consider that a harbour of refuge at Filey would prevent any wrecks now occurring south of Flamborough Head, under any circumstances?—Certainly, under some circumstances, but not of frequent occurrence.

697. Then, as far as your observation and opinion go, we may consider the benefits of such a harbour limited to the case of wrecks occurring north of Flamborough Head?—More especially those.

698. Mr. *Liddell*.] I understand you, I think, distinctly to say, that you do not consider one harbour sufficient for the requirements of the whole of the coast?—I do not consider one harbour sufficient.

699. Sir *Frederick Smith*.] Can you state to the Committee whether a greater proportion of shipwrecks takes place with laden ships than light ships?—Yes. That has been very exactly determined to be four to one; four laden vessels to one light one.

700. It is the fact that the laden vessels are four to one in the proportion of loss over the light?—Exactly so.

701. Is it not the case with laden vessels coming from those coal ports, that a north-easterly wind would carry them round Flamborough Head?—No, a north-easterly wind would not carry them round Flamborough Head, unless it was a moderate wind. They would just about fetch round it, and that would be all.

702. But a moderate wind, north or north-east, would carry them on?—Yes, to London.

703. Therefore a north or north-easterly wind would carry laden ships on to their port of destination?—In moderate weather, certainly.

704. And in the event of a south or south-easterly wind, it would be impossible for those ships to enter Filey, were a harbour constructed there?—That depends upon how far they had advanced before they met the breeze.

705. I mean, when they were to the northward of Flamborough Head, if the wind blew from the south or south-east, it would be totally impossible for them

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to enter the harbour, if constructed at Filey?—If they were immediately north of Flamborough Head, they could get very easily into Filey; that wind would blow them right into it.

706. You mean, between Flamborough Head and Filey they would be able to get in?—I said, immediately north of Flamborough Head; of course, if to the north of Filey they could not.

707. I am right in supposing this, am I not, that laden vessels with a north or north-east wind, would be able to go on their voyage; and with a south or south-east wind, vessels north of Filey would not be able to avail themselves of any refuge that Filey would afford them?—With a south-east wind they would not require it, because they could stand off to sea, and be in perfect safety.

708. What would they do with a north-east wind?—That would drive them into the bay again.

709. Admiral *Duncombe*.] What is the wind in which the greatest number of wrecks occurs?—The north-east wind, because it makes a lee shore of it; a line drawn from Fern Island to Flamborough Head is in about a south-east direction. All these bearings throughout this evidence have reference to the *true*, not the magnetic meridian. The right angle to that is the north-east wind, which is the one that blows right into the bay.

710. Sir *Frederick Smith*.] I presume that depends upon how far the ships are off the land at the time, whether they have got an offing or not?—You will see from that map; these places are in the bay; the north-east wind blows in here, and the vessels cannot get out. If it comes to blow a south-east wind, they stand out to sea (*explaining the map*).

711. Am I correct in this view, that a ship without that line would be able to enter?—With moderate weather.

712. Are you aware that it is customary for large fleets of ships to lie at anchor off that coast to the north of Filey, with a north or north-easterly wind, and to make for London?—I have seen them there with a south wind, but they leave as soon as the north wind comes.

713. Then with a north-easterly wind they would be able to attain their port, and with a south-easterly wind, they would not be able to avail themselves of this harbour accommodation at Filey?—With a south-easterly wind they would not, certainly, if they were to leeward of Filey.

714. Mr. *Kendall*.] If there were a harbour of refuge at Filey Bay, I understand you to say that you think it is probable that three-fourths of the wrecks might be prevented?—I think so.

715. And you think it would be necessary to have one at Hartlepool for the other fourth?—Yes.

716. You do not mean that if there were one harbour of refuge at either place, that three-fourths of the wrecks would be saved?—No, I do not mean that.

717. Admiral *Duncombe*.] I understood you to say, that if there were a harbour of refuge formed at Filey, three-fourths of the vessels now wrecked on that coast might be saved?—I think so.

718. And you conceive that Hartlepool is a desirable spot for a second harbour upon that coast?—Yes.

719. Is your opinion formed merely from your own knowledge of the position of Hartlepool, or from acquaintance with the harbour itself?—Merely from its position; I have no knowledge of its capabilities.

720. You are not aware that Hartlepool is silting up?—I have seen it stated that it is doing so; but, of my own knowledge, I do not know anything about it.

721. Perhaps you are not aware that vessels lying there sometimes are unable to complete their load, but are obliged to leave the harbour for want of water?—I am not aware of that.

722. *Chairman*.] Did I understand you correctly, when you say that three-fourths of the wrecks that now occur on that coast would be prevented if there were a harbour of refuge at Filey; that a harbour of refuge at Hartlepool would not serve those vessels?—It would not prevent the disasters that occur from collisions off Flamborough Head, of which there are a great number.

723. Supposing there were a harbour of refuge at Hartlepool, and not at Filey Bay, what proportion of the whole of the wrecks do you think would be saved?—I should think a considerable proportion; probably half.

724. Then, when you say that the other one-fourth would be saved by a harbour at



at Hartlepool, you do not mean to infer that none of the others, in the event of there not being a harbour at Filey Bay, would be able to avail themselves of the harbour at Hartlepool?—I do not mean to say that some of the others would not be able to avail themselves of it, but not so many.

725. What is your authority for saying that four-fifths of the whole of the vessels that are lost are laden vessels?—Some statistical accounts prepared by the Board of Trade and Admiralty. It is contrary to what I, as a sailor, should have expected, but there are circumstances which show that it is probably exact, when the peculiar circumstances are considered.

726. Was not it your impression that a very large number of light vessels went on shore in north-easterly gales?—Yes, it was my impression until I saw this statement, which I believe is accurate, being given by the Board of Trade.

727. Sir James Elphinstone.] With reference to viewing Filey Bay as a harbour for the purpose of concentrating a squadron in the case of a war, of course you point to a squadron of steam-ships?—Yes, an extensive fleet; a fleet capable of resisting any attack from the united European powers.

728. And a fleet, of course, propelled by steam power?—A fleet, of course, propelled by steam power.

729. Consequently, any tide which may exist in the neighbourhood of such a harbour as Filey is of very little importance to such a fleet?—The tides there are not of any importance.

730. Mr. Liddell.] Do you still maintain your opinion that the collier brigs, which are the chief class of vessels navigating that coast, when caught in a south-easterly gale, can keep the sea?—Certainly they can, and they had much better keep the sea.

731. Is it the fact that they do so?—That is a question I cannot answer.

John Coode, Esq., C.E., F.G.S., called in; and Examined.

732. Chairman.] YOU are a Civil Engineer in the service of the Government?—I am.

733. You are at present employed at Portland, are you not?—Yes.

734. I think you gave evidence last year upon the harbour at Portland, and on other subjects before the Committee?—I did, in July last.

735. Do you know Filey Bay?—I do; I have made a report upon it.

736. This is your report, which has been sent to the Committee (*showing the same to the Witness*)?—Yes.

737. You know the east coast of England generally, I believe?—Generally; I have not a very intimate knowledge of it in detail, but generally I do.

738. Do you know the coast to the north of Filey Bay?—Principally from charts; I know it as far as Scarborough, but beyond that I have no other knowledge than that given by charts.

739. So far as regards a knowledge of the east coast of England, you know nothing of your own knowledge beyond the north of Filey Bay to Scarborough?—Nothing except from inspection of charts.

740. You have not as a civil engineer examined any part of the coast beyond that?—Not north of Scarborough.

741. Have you minutely examined the neighbourhood of Filey Bay?—I have, very minutely.

742. Have you formed any opinion of its capability as a harbour of refuge?—I think its capabilities are very great and very peculiar. I have laid down a design which is attached to my report, and as I have stated in that report, that design does not show the full extent of shelter of which that bay is capable.

743. That is the plan attached to your report of which you are now speaking?—Yes; it is capable of still greater extension if thought desirable.

744. What led you to examine this particular spot upon that coast?—I was requested by some gentlemen interested in Filey to look at the bay, and give an opinion as to whether it was an eligible site.

745. You were not employed by the Government to do that?—No.

746. You were employed in the capacity of a civil engineer to examine the spot, as to its capabilities for a harbour of refuge?—That is the case.

747. When was the report made?—It was made in January last.

748. When were you employed to make this investigation?—In September or October, last year.

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749. Since the Committee sat, last year?—Yes.

750. Will you state to the Committee generally what are the peculiar capabilities which this particular spot in your opinion offers for a harbour of refuge?—In point of geographical position, I think it has very remarkable advantages. These advantages must be looked at in connexion with the number of wrecks occurring upon that part of the coast, and also in connexion with the proportion of loaded colliers which are wrecked as compared with the proportion of light colliers. When I went to Filey, my attention was called to the great accumulation of vessels off Flamborough Head, and to the peculiar dangers which beset them there; that this was really the critical part of the voyage.

751. Flamborough Head is to the south of Filey?—Flamborough Head is the south headland of Filey Bay.

752. What state of wind, which would be dangerous to vessels lying off Flamborough Head, would assist them in going into Filey Bay?—The south-east wind; I should say that vessels lay along the land making a good reach with the prevailing wind, which is south-west; they get off Flamborough Head, and find the wind some two or three or four points more southerly; there they are baffled, they hang about a considerable time, and are often overtaken by gales.

753. With a southerly wind there is no difficulty with vessels in that position going further north than Filey Bay?—No, except in the case of gales; then there would be very considerable difficulty, because there would be a risk of foundering in running back, which risk is very considerably enhanced in the case of a loaded vessel as compared with a light one, a fact which is borne out by an analysis of the wreck returns, as furnished by the Admiralty and the Board of Trade.

754. Do you find that a large portion of them are lost by foundering at sea?—A large portion of them are lost by foundering at sea, particularly off that part of the coast.

755. And by collision?—A great many by collision.

756. And a large portion foundering without collision?—Without collision. I think an inspection of the wreck chart will show that. There is one point I should like to speak to, and that is the result of an analysis of the wrecks in detail. I should state that the wrecks upon the coast of England were published in detail, and presented to Parliament up to the year 1854; since that only an abstract has been published. Taking the only three years of which I can obtain a detail, 1852, 1853, and 1854—the three years alluded to in the wreck chart—I have analysed the returns, and I find that the loss of life in the case of vessels in cargo is more than ten times as great as that in the case of vessels in ballast between Flamborough Head and the Tyne. I have analysed the wreck statistics which give the whole detail for the years 1852, 1853, and 1854, which are the only years in which the details can be got at by the public at all events; and I find that the loss of life, in the case of vessels in ballast between Flamborough Head and the Tyne, amounts to 17, whereas the loss of life arising from the case of vessels in cargo amounts to 182, and that is accounted for in this way: first of all those loaded vessels endeavouring to get to the south are baffled at Flamborough Head, as I have just explained; there they hang about, and serious collisions take place. With reference to the proportion of those collisions, on different parts of the coast, I should also wish to speak. On counting the collisions off Flamborough Head, as shown by the Wreck Chart, I find that they amount to 31; on taking the number of collisions off the Tyne, the Wear, and the Tees, I find they only amount to 36; so that the collisions off Flamborough Head are within five of the whole number occurring off the Tyne, the Wear, and the Tees put together. That is one point, I think, quite confirmatory of the statement that vessels do get baffled and delayed there. Then another is, that the risk to a loaded vessel running back is very great compared with that to a light vessel; her risk of foundering is greater. That is not all; when a laden vessel has arrived at sea, and rough weather comes on, with the harbours as they at present stand, she runs and makes for one of those harbours, and perhaps gets there at low water or at half tide; she draws, may be, from 12 to 16 feet; in the send of the sea that vessel probably strikes in what would be 15, or perhaps even 18 feet of water if there were no undulation; it will be evident that the chance of escape upon the part of the crew, under these circumstances, would be very much diminished as compared with a light vessel, or a vessel in ballast

ballast, drawing perhaps only five feet of water, running up the beach; the chance of the men escaping in that case would be very great indeed as compared with the loaded vessel, and it is from those causes that I account for the very striking disproportion of the number of lives lost in the case of loaded vessels, as compared with the number of lives lost in the case of light vessels.

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757. In point of fact, it is the difference which exists between the danger to the loaded and the light vessels?—Yes; either in the case of taking a bar or of beaching.

758. This would be in a strong south-easterly gale?—A strong easterly or south-easterly gale.

759. In the case of any of those vessels being caught in that gale immediately above the point of Filey Bay, Filey Bay would be of no use to them?—That depends upon how far the wind might be southerly, how far easterly, and also upon the amount of offing. Filey Bay is about three or four miles to the leeward of Flamborough Head, with the worst wind upon that coast.

760. A vessel to the northward of Filey Bay could not make Filey Bay with a south or a south-easterly wind?—It would be a question with the master whether he should attempt to beat for Filey Bay or run back.

761. I refer to a vessel to the northward of Filey Bay with a south or south-easterly wind, would that vessel be able to make for Filey Bay?—That would depend upon how far she might be to the north, and how far the wind might be to the south or the east; if you give the particular point of wind perhaps I could speak a little more particularly, but if it be a question of a single point or so, I would rather that nautical men should speak to that.

762. What facilities are there in Filey Bay for the construction of a harbour?—Greater, as far as my inspection has shown me, or as far as I can learn, than at any other point; the rock of Filey Brigg is composed of very hard calcareous rock; the coast to the north is very rocky for about three miles; in fact, for the greater part of the distance between Filey Brigg and Scarborough the coast is formed by the out-cropping of this hard calcareous grit.

763. There would be no difficulty in getting material?—Not the slightest; the material would be run at once from the cliffs to the breakwater.

764. Therefore, so far as your engineering knowledge goes, you would say that it would be a favourable point for the construction of a breakwater?—Very much so.

765. What is the length of the breakwater?—The length of the breakwater, including the length upon Filey Brigg, is 9,600 feet.

766. Three thousand two hundred yards?—Three thousand two hundred yards; it is 1,010 yards shorter than the harbour designed for Hartlepool by Mr. Rendel; that was 4,210 yards; this is 3,200, and yet it gives deeper water.

767. What acreage of anchorage would this give?—There is a table printed in red on the righthand side of the chart which explains it in full detail; it would give 200 acres, sheltered from every wind that could blow, with water deep enough for a line-of-battle ship; it would give 348 acres, also sheltered from every wind that could blow with three fathoms and upwards; it would give 403 acres, sheltered from every wind that could blow with water enough for the largest colliers; and it would give 427 acres of one fathom in depth and upwards which would be calculated for fishing boats. As the chart shows, there would be a much larger acreage with all other winds.

768. Is  $2\frac{1}{2}$  fathoms enough for any collier?—Yes; from 12 to 14 feet is their general draught;  $2\frac{1}{2}$  fathoms is 15 feet;  $2\frac{1}{2}$  fathoms is the minimum depth over that 400 acres.

769. Then, for the general coasting trade, you would say that there are 400 acres of shelter?—Yes, sheltered from every wind that could blow.

770. Would they be sheltered from the south-easterly wind, as you have constructed this breakwater?—They would; if you look at the dotted red line carried from the south-east, you will see the area which would be shut in by that breakwater, if that red line were followed up to the shore.

771. Now you are speaking of when vessels are once in?—Yes. I understood the question to be to that effect.

772. In a heavy gale of wind and a high sea, what sort of a coast is this?—Very dangerous indeed.

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773. Will you just keep your eye upon the map. Suppose there was a very strong south-easterly gale and a heavy sea, would it not be very dangerous to enter this harbour with that very bold coast?—No, because there is no tide there to cause a break of sea.

774. No tide to carry them ashore?—No tide. This is in the bight of the bay. The tide is very slack indeed there. The tide off the east end of Filey Brigg, at springs, only runs about a knot and a half.

775. You think there would not be much danger, with a strong south-easterly gale, of getting on shore in attempting to make this harbour?—No, I think the sea there would certainly not be so bad as off Flamborough Head, because off Flamborough Head, with a southerly wind and a flood tide, there would be what sailors call a very nasty sea; a very awkward and dangerous sea.

776. What is the nature of the holding ground, the anchorage, in Filey Bay?—It is very good indeed; it is the Kimmeridge clay.

777. Hitherto has it had any disposition to silt at all, or has the average depth of water continued the same for some years?—I took the Admiralty chart as the best authority. I referred to that chart as published in 1844. I found the same chart published with corrections in 1856 or 1857, and the depth of water is precisely the same in both cases, showing, therefore, that there has been no accumulation whatever since the year 1844.

778. Admiral *Duncombe*.] During your visits to this point of the coast, have you frequently seen large numbers of vessels off Flamborough Head and under Flamborough Head wind-bound?—I have seen vessels lying under Flamborough Head wind-bound, or rather under Speeton Cliffs, which point is about half way down in Filey Bay; but the accumulation of vessels off Flamborough Head is very remarkable indeed.

779. Amounting to some hundreds?—I have seen 300 there, and not only so, but it is very striking to see the small space within which that number will be contained.

780. Those generally are laden colliers working their way south?—They are, and the accumulation is to be accounted for in this way, that they all leave their ports at about the same time of tide; and they all come down together, because what is a fair wind for one is a fair wind for the other, and what is a scant wind for one is a scant wind for the other.

781. And in most instances they make their voyage as far as Flamborough Head, where the wind meets them and puts them into a difficulty?—Yes; and notwithstanding the exposure of the bay, a very large number of vessels will even now bring up under Speeton Cliffs, and incur the risk of the wind coming round to east and south-east upon them.

782. If there were a harbour of refuge made in Filey Bay, that would be the place for those vessels to run to for the time, to be secure?—No doubt; and they would run for shelter to that harbour, rather than to Speeton Cliffs.

783. Has it come to your knowledge that a great number of those colliers get as far as Flamborough Head, and are obliged, from stress of weather, to run back to the north, and are lost, some by foundering and some by going on shore?—Yes; the whole of the evidence I have received from captains is entirely to that effect.

784. In fact, the great majority of the vessels lost, as shown in the Wreck Chart, are known, previous to their wreck, to have got as far as Flamborough Head, and have been lost in running back?—Yes; there are cases reported of vessels which lay in Filey Bay on the 6th of February last. There were 98 vessels counted under Speeton Cliffs; there was about the same number dodging about in the offing and off Flamborough Head. I understand that communications were received from some of those vessels about a fortnight since only from Leith Roads, and some of them had been down twice or three times to Flamborough Head, and were driven back again.

785. Driven back as far as Leith Roads?—Yes, I know that in one of those cases the vessel was lost, the case of "The Advance," of Shields. The master, when lying under Speeton Cliffs, was asked, with a number of others, what he thought of the capabilities of Filey Bay; he expressed himself very strongly in favour, and signed a petition, as did a great many others; all that were boarded signed, but the sea was so heavy that it was impossible to board them all; that man lay under Speeton Cliffs for somewhere about 24 hours, I am not prepared to say exactly how long. I have since seen his report, that the vessel foundered in

in 33 fathoms water, somewhere off Whitby. There are other cases also reported, which are very numerous, and as I said just now, some of those vessels which lay there on the 6th of February, were heard of about ten days or a fortnight since in Leith Roads; some of them reported themselves as having been down two or three times to Flamborough Head, and driven back again.

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786. They were vessels principally out of the coal ports?—Yes; I understand there is not a single vessel hailing from Filey; they are all fishing boats there.

787. Are you at all acquainted with Hartlepool, as to the depth of water, the degree in which the depth varies, the silting up, or the different circumstances connected with that port?—There is a Parliamentary Paper, in which there is some of the strongest possible evidence as to the silting up of Hartlepool.

788. Of your own knowledge you are not acquainted with Hartlepool?—I am not. I have examined the charts and can speak to them.

789. Lord *A. V. Tempest*.] I believe you are employed by the promoters of this idea of a harbour of refuge at Filey Bay?—Yes.

790. When was the scheme first propounded recommending that a harbour of refuge should be constructed there?—Am I to understand the question to mean as far as I am personally concerned?

791. No. Can you state to the Committee when it first occurred to the promoters of this scheme to bring it before the notice of the Committee?—I cannot say when it first occurred to the promoters to bring it before the Committee. The question of a harbour at Filey was much talked of in 1852, when Sir James Ross was there, and he then sketched a plan which he produced before the Committee just now; that is the earliest thing in the way of a design that I have heard of.

792. The recommendation of Filey as a harbour of refuge was never brought forward in any way till 1852, was it?—Yes; it was reported upon favourably in 1836, by a Committee of this House.

793. Is Sir James Ross connected with the neighbourhood of Filey in any way?—Not that I am aware of.

794. There is no shipping at all at Filey?—No.

795. Is there much trade at Filey?—There is no trade at Filey, but I do not think that affects the question of its eligibility as a site for a harbour of refuge.

796. Am I right in saying that there is no railway in connexion with Filey at present?—There is a railway at Filey, and an electric telegraph.

797. Can you state the distance between Flamborough Head and Fern Island?—It is about 100 miles.

798. What distance would you say Filey was from Flamborough Head?—I think about from six to seven miles.

799. In constructing a harbour of refuge for the requirements of a coast embracing 100 miles between two points, is it your opinion that those requirements would be best provided for by the construction of a harbour of refuge at a point seven miles from the southernmost point?—Yes, I think that is quite near enough; and I think it is the point where you could give the greatest good to the greatest number, and save most lives, as shown by statistics.

800. I want to know whether you consider that making this harbour of refuge seven miles from the southernmost point of those two points would be providing for the requirements of that 100 miles of coast?—If it can be shown that the proposed harbour is within six miles of the point of greatest danger I think it would be providing for the requirements of the coast, because the statistics of wrecks show the great want to be for the loaded colliers thereabouts.

801. Do not you consider that the requirements of the coast would be better provided for by either an improvement of the existing harbours upon that coast, or by the construction of a harbour of refuge more in the centre of that part of the coast?—No, I consider that the wants of the coast would be best met by the construction of a harbour of refuge nearest to the point of greatest difficulty, and if you like improve the harbours further north for the light vessels,—if any improvement can be made there, so as to afford greater facilities for the light vessels getting in to the north of Filey,—to that I should agree; but I think the first thing is to provide for the greatest want.

802. I think I am right in understanding your view to be that a harbour of refuge constructed at Filey would be more advantageous for the purpose of providing refuge for laden ships than for light ships?—Yes, solely from facts

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brought out by statistics; I have searched the registers of the Board of Trade; I find that they are as four to one.

803. In the event of laden ships coming from any port upon the part of the coast north of Filey, am I not right in saying that, with a north or north-easterly wind, these ships would be able to continue their voyage to London?—With a north or a north-easterly wind of a moderate character, but with a north or north-easterly gale, they would be very likely to take shelter; they would not care to go round the Head.

804. In the event of a north-easterly gale they might get round the head, and take shelter in the Humber?—Yes, they might do so; but the danger of getting into the Humber with a northerly wind is very great.

805. Are you not aware that the large number of ships which you have stated to the Committee are continually seen off Flamborough Head, and the neighbourhood, are waiting there for a north or a north-easterly slant of wind to take them on to London, and that that circumstance accounts for the large number of ships waiting there?—It very often happens that they are waiting on account of a southerly wind, that they want a fairer wind to get on; they get to Flamborough Head and are met with a wind too far southerly to take them on their voyage, and if they get there about ebb tide, then they have not only the wind but the ebb tide to contend with.

806. In the event of a south-easterly gale, would they not be able to return to the place from which they came?—They might return, but they would incur a very great risk in so doing.

807. I understood from Sir James Ross that in a south or south-easterly gale it would be very dangerous to enter this harbour at Filey Bay?—I see no difficulty at all.

808. A ship to the northward of Flamborough Head would find it very difficult, if not impossible, to enter Filey Harbour, if made there?—That depends upon the distance she might be north of Flamborough Head, and the extent of offing she had.

809. Opinions have been given with reference to the relative advantages of harbours of refuge constructed on salients, or in the bights of bays; do you consider that Filey may be taken to be a salient point?—It is close to a salient point.

810. It is seven miles from Flamborough Head?—Not in advance of it; from six to seven miles from Flamborough Head, but still to leeward of Flamborough Head.

811. Do you consider that Filey itself ought to have the denomination of a salient point of the coast?—Filey town would not have that character.

812. But the point where this harbour is proposed to be made?—That would not be the most salient point of the coast. Flamborough Head is the most salient, Filey the next, and in point of national defence that is most important. I have a chart here elucidating this, if the Committee wish to see the importance of the position of Filey with reference to national defence (*producing the same*). The red note in the margin will explain the lines.

813. Sir *Frederick Smith*.] Have you formed any estimate of the cost of the proposed breakwater?—I have; and it is stated in the report as 860,000*l*.

814. What mode of construction would you propose to adopt?—I should propose to adopt a precisely similar construction to that which I recommended last year in the case of Wick, to bring up the rough deposit to about 15 feet under low water, and thereon to build a vertical wall.

815. Are there materials on the spot for the erection?—I am not certain as to the proportion of materials that might be fit for the facing; but with reference to all the other materials there is a superabundance. It is possible that, for the face, larger blocks might be required than the cliffs would afford.

816. In the absence of that certainty, how did you frame your estimate?—I have framed my estimate assuming that hard Bramley Fall is provided; therefore I am safe in that.

817. The principal object of your proposed harbour of refuge at Filey Bay would be for vessels going to the southward?—It would; and the statistics of wrecks show that the requirements for such vessels going southward, are in the proportion of four to one, and as regards loss of life, ten to one.

818. You assume that that harbour would come into operation in the event of vessels going southward meeting with a southerly wind?—Undoubtedly.

819. Then

819. Then it is only between the point of Filey and the salient point of Flamborough that it would come into operation; because a vessel south of Filey Bay would not be able to get into that harbour of refuge with a southerly wind? —With a southerly wind she would have a fair wind to run back.

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820. That is not the question; my question is this, that vessels south of Filey would not be able to get into Filey harbour of refuge?—Yes, it would be a fair wind for them; it would be abaft the beam.

821. What is the wind that prevents a vessel going round Flamborough Head?—Due south.

822. If she could get round Flamborough Head with a due south wind, could she not to the northward of Filey get into Filey harbour of refuge?—That depends upon the extent of offing.

823. They generally keep as straight a line as they can get from their point of departure, do they not?—Yes; the masters all know that their great difficulty occurs at Flamborough Head, and their first aim on leaving the port is to ensure an offing; and if they cannot ensure an offing they will not leave their port. They only leave their ports when they see every probability of clearing Flamborough Head.

824. You assume that Flamborough Head is the great cause of detention on the voyage?—I am satisfied that it is.

825. So that, in point of fact, if you could construct at Flamborough Head itself a harbour of refuge, that would be the point you would select for that purpose; you would prefer it to Filey?—If I could construct one of sufficient capacity. It is only half an hour or three quarters of an hour's run from Filey; but there are no facilities at the Head.

826. It is about six miles distant?—Yes.

827. How far does it project seaward of Filey?—About three miles.

828. Are you of opinion that the great number of wrecks that take place at the mouth of the Tees, by Hartlepool, and off the Tyne, arise from vessels that have been driven back from Flamborough Head?—Undoubtedly so, from all the information I have been able to gather, and from all the opinions of masters given upon that point. I should say there cannot be a question of it.

829. Not vessels running for a harbour; but vessels driven back?—Sometimes vessels driven back, and sometimes vessels running back for want of a harbour near Flamborough Head.

830. I presume the Committee may infer from your evidence that harbours of refuge made at those three ports would, in some degree, dispense with the necessity of one at Filey?—Which ports?

831. Hartlepool, the Tyne, and North Tees?—No, I do not think so at all; that would not in any way affect the collisions off Flamborough Head; a great number would be compelled to do as they do at present, that is, weather it out rather than run back as far as Hartlepool, because, as I said just now, the risk of running back is very great indeed; there is the risk of foundering, and in winter, with the easterly gales, there is the risk of snow storms, during which a man does not know where he is. Very often wrecks have occurred near Robin Hood's Bay from this cause.

832. Then you have no doubt whatever, that if the public money were to be laid out for the construction of a harbour of refuge, the greatest amount of good would result from that harbour being at Filey Bay?—Not the slightest doubt whatever; and I am quite sure that the proportion of wrecks of loaded colliers, and the experience of 99 masters out of 100, upon the coast, will fully bear me out.

833. Mr. Clay.] A question was asked, whether a harbour of refuge at a port which was already a great commercial port would not, *ceteris paribus*, be preferable to a harbour at a place like Filey, where no trade exists; is that your opinion, or what capabilities has Filey to combat that?—I think, so far from a commercial port being an advantage it is rather a disadvantage, because a vessel wants a harbour of refuge when she is overtaken by a storm on her voyage, and not when she is just coming into her port, or just leaving her port; therefore, so far from the fact of there being no commerce at Filey being a disadvantage, I think it is a great advantage; so far as I can see, I cannot discover what advantage a harbour of refuge at Hartlepool can be to the trade of Hartlepool; a man leaving that port does not want a harbour of refuge at Hartlepool; he wants it at some place on his voyage.

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834. Are you acquainted with what I may call the embayment theory of Mr. Calver?—Yes.

835. Do you agree with it?—Certainly not; I think Mr. Calver himself hardly agrees with it.

836. Will you state your reasons for not agreeing with it?—My reasons will appear by referring again to the proportion of wrecks of loaded colliers; a collier having her cargo in does not leave her port in a gale of wind; she does not leave her port till she sees a reasonable prospect of getting round Flamborough Head; she is then down in the bay; and if she sees that she cannot get out of the bay she does not leave her port. Then, again, I think that line of embayment is scarcely properly drawn; if we have reference to the local coal traffic, that line ought to be drawn from the mouth of the Tyne to Robin Hood's Bay, and then the bay will be seen to be one-half of the depth shown upon that chart (*explaining the same*).

837. Will you state your reason for considering that the line of embayment is improperly drawn, both with reference to the coal trade and the general trade; first state the two lines which are drawn?—Mr. Calver's line of embayment is drawn from North Sunderland Point to the north cheek of Robin Hood's Bay. My views are, that if the embayment is to have reference to the coal traffic, the line should be drawn from the Tyne on the north to Robin Hood's Bay on the south. The depth of the bay will thus become reduced one-half. If the embayment is to have reference to the general traffic along the coast, then I say that the line should be drawn from the outermost Fern Island to Flamborough Head, and a vessel coming round the outermost Fern Island with anything like an offing would, with any wind when she could get to the southward at all, have every chance of getting up as far as Flamborough Head. If she found that she could not get further south, then she would have Filey Bay at least three or four miles under her lee. I should notice that Mr. Calver, when asked a question with reference to the embayment of vessels, as shown in the evidence before the Committee of last year, says very truly that these harbours as they at present stand are dangerous decoys, that the vessels are drawn down there by the existence of these harbours, and that if these harbours did not exist, they would keep an offing and go to the Firth of Forth or the Humber. There I quite agree with him. But in using that line of argument Mr. Calver distinctly denies the very fact of embayment, because if a vessel can keep an offing and go to the Firth of Forth or the Humber, she cannot be very well embayed.

838. On general principles do you prefer a harbour of refuge on a salient point of the coast, or in the bight of a bay?—As far as refuge is concerned I take it that, in the abstract, a harbour in the bight of a bay is the best; but I maintain distinctly that there is a special exception in this case; that exception being the difficulty at Flamborough Head, which makes Filey Bay, although nearest to the most salient point of the coast, the most eligible point for the construction of a harbour of refuge; that is, so far as refuge is concerned; so far as national defence is concerned there can be no question whatever that a salient point is the best.

839. Can you tell me how many miles more to the east this harbour would be than Hartlepool?—Thirty-six nautical miles, which would be from three to four hours steaming for a fast frigate.

840. Thirty-six miles more eastward?—Yes.

841. If a harbour of refuge, such as you propose, were formed at Filey, would you consider that the whole of that part of the coast was sufficiently protected, or should you consider an auxiliary harbour of refuge at Hartlepool an advantage?—I think an auxiliary harbour of refuge somewhere down in Tees Bay, I am not prepared at this moment to say where, but somewhere in Tees Bay, to save the very small proportion which could not get out, would be desirable, because I think the fact that I have already spoken to as to the number of lives lost in the case of loaded vessels being as ten to one to those lost in the case of light vessels, would go to show that the neighbourhood of Flamborough Head, where the loaded vessels meet with their difficulties, is the point where a harbour of refuge is wanted.

842. How many vessels have you ever heard of as being placed in those difficulties off Flamborough Head at the same time?—I have heard of 750 vessels having brought up in Filey Bay under Speeton Cliffs at the same time.

That



That was about 30 years since. I cannot ascertain the exact date, but it is notorious in that district.

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843. And that difficulty arises from their meeting with the wind too much south to enable them to weather Flamborough Head?—It does.

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844. That is a wind which would be a leading wind for them to get into a harbour of refuge at Filey Bay?—It is; it would be quite abaft the beam.

845. Mr. *Liddell*.] We have had a good deal of evidence to show that the great point of difficulty upon this coast, and the great loss of vessels, occurs at Flamborough Head?—Flamborough Head is one of the points where a very great difficulty occurs.

846. Will you turn to the wreck chart. I have taken the trouble to count the number of wrecks and casualties that occur at the point which I will describe as Flamborough Head. I find, as well as I can count them, that the number of casualties there does not equal the number of casualties which occur at one single port to the north of that, namely, the point that I may describe as represented by Sunderland. The number of wrecks occurring in the neighbourhood of Sunderland is twice as large as the whole number at that which may be described as the most dangerous point on the coast. I have not calculated the number of either the Tyne or the Tees. I merely take that one point represented by the port of Sunderland?—We must start with the undoubted fact, shown by the wreck returns, that there are four loaded colliers wrecked for one light one. As I said before, those loaded colliers leave their ports not with an on-shore gale, but on such occasions as they can get some reasonable offing to get to the southward; they do get to the southward; near Flamborough Head they get baffled; they are overtaken by a gale of wind, and they run back to those ports because they have nowhere else to go. That is the reason why so many wrecks appear to occur at the several points from the Tyne southward.

847. Now, turn to the wreck chart, and cast your eye further south, because we have hitherto dealt with Flamborough Head; but there is a point of land still further to the eastward, represented by Great Yarmouth. The number of wrecks marked at Great Yarmouth is very large?—It is so.

848. Suppose a vessel to be baffled by a strong south or south-easterly gale at the point represented by Great Yarmouth, she is now enabled to run to the Humber, is not she?—She is.

849. Consequently, we may argue that a great many vessels meeting with a difficulty at the next point, namely, Great Yarmouth, do find refuge in the Humber?—With great submission, I should doubt that; I think those vessels would attempt to take shelter in the Yarmouth Roads.

850. How do you account for the immense number of wrecks which are shown to take place at Great Yarmouth?—On account of the shoals that exist there, and from the want of more protection. The shoals afford a certain amount of protection; but, at the same time, they are exceedingly dangerous.

851. Does not that rather upset your theory, that vessels meeting with difficulty at Flamborough Head run back to the port from which they are bound, and are wrecked in consequence of not been able to get in, when we find that when they could get into the Humber, they do not avail themselves of that shelter?—It is because they have a certain amount of shelter in the Yarmouth Roads. It is called Yarmouth Roads because it affords that shelter.

852. You anticipate, then, that in the event of a harbour being created at Filey, vessels meeting with a difficulty at Flamborough Head would be safe to be able to run for Filey?—Yes.

853. Now, one or two engineering questions with regard to the position. You were asked whether much silt had been observed; have you analysed the water at this coast?—No; I am content with the fact that from the year 1844 to the year 1857 there has been no deposit whatever. The depths are shown in feet in the case of Filey Bay, which is not very common. The depths are usually shown in fathoms; and therefore, if there were a variation of the depth, that would not show, unless the difference amounted to a quarter of a fathom; but in the case of feet, if there were a variation of six inches or a foot, it is shown by half-feet and so on—23½ feet, 53½ feet, or what not. There is no single case of a sounding being different in the chart of Filey Bay published in 1857, when compared with the chart published in 1844.

854. Is it not the fact that at present, this being almost an open bay, the  
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action of the sea alone will keep it open?—No, I think not, because there is no sandy shore on either side of it. If you go to the north, you find that the shore is entirely rock, and to the south, clean shingle.

855. I look at your own map, and I find (I do not know the distances) Filey Sands, Muston Sands, Hunmanby Sands, Reighton Sands, and Speeton Sands extend for several miles; I want to know whether there would not be a much greater liability to silt, in the event of this proposed breakwater being constructed there, than exists at present?—No; I think there would be less, when I consider that these Filey Sands, Muston Sands, Hunmanby Sands, Reighton Sands, and Speeton Sands are the only sands upon this part of the coast. In order to ascertain the probabilities of silting, we must look at the origin of those sands. The origin of those sands is from the cliffs which are immediately adjoining them. They do not come from the north; there is no sand on the north; it is all rock. There is no sand on the south; it is all shingle; and if you refer to the chart which is attached to the report on Filey Bay, you will see that from Speeton Cliffs to Flamborough Head the character of the beach is represented differently from that on the Filey side; the beach there consists of shingle.

856. You might fairly say that about half of the beach consists of shingle, and half of sand?—My own view of it is that about one-third is sand, and two-thirds shingle.

857. In the event of this proposed breakwater being made, it appears to me that by the action of the prevailing wind upon that coast, and the necessary action of the sea, the breakwater would be a positive trap for whatever silt there was, without any means of cleaning it?—There is no deposit of silt there in the whole of the bay; that is quite certain. The Admiralty charts show the same depth at two distant periods; the holding ground is blue stiff Kimmeridge clay, covered by a mere sprinkling of sand. If you will allow me to speak for a moment as to the origin of those sands described as Filey Sands, Muston Sands, Hunmanby Sands, Reighton Sands, and Speeton Sands: it is said that those sands are caused by the action of the sea; the easterly gales causing a certain amount of waste in front of Filey. The construction of this breakwater, so far from causing an accumulation of silt, will prevent an accumulation, because it will cut off the sea stroke. The easterly sea stroke which has caused these sands will be shut off; therefore, so far from there being an accumulation, there will be less tendency to sand in Filey Bay, assuming that this harbour were constructed, than at this moment.

858. That you give as your deliberate opinion?—I do; it is a point to which I have given great attention in the West of England.

859. The water gets very rapidly deep, it appears to me, after you leave the point of Filey Brigg, in the direction which that breakwater is to take?—Yes, the water deepens very rapidly.

860. And goes to a very great depth?—Yes.

861. What is the proposed length of that breakwater from the end of Filey Brigg to this point?—Seven thousand five hundred feet.

862. Have you estimated the cost of constructing a breakwater in water of that depth?—I have.

863. It will be large?—It will be large; but that estimate is founded upon my experience of the expense of the breakwater in deeper water at Portland. The water at Portland is from eight to ten fathoms deep; the water at Filey is from six to seven fathoms deep.

864. Do these figures which are marked upon the chart represent the number of fathoms?—No; the number of feet.

865. Then I find on leaving the point at Filey Brigg, you immediately get into 27 feet of water, which increases to 35, 36, 37, 38, and so on to the extreme point. Will you state to the Committee what the estimate of the cost of that breakwater will be?—£. 860,000.

866. Mr. *Dodson*.] Am I to understand you to say that the Yarmouth Roads, to a certain extent, act as a dangerous decoy, inasmuch as vessels are tempted to remain there instead of running back to the Humber?—No; I said there was a certain amount of shelter afforded in the Yarmouth Roads by the sand-banks existing there; but while they afford a certain amount of shelter, they are also attended with a certain amount of danger, because a vessel cannot always clear them, and their position cannot be seen.

867. Did not you state that many vessels which were wrecked off that coast might

might be saved by running back to the Humber?—There would be a certain amount of risk in running back to the Humber. I said that in running back from Flamborough Head to harbours north, the danger of foundering is very great indeed; I referred to loaded vessels, in which case the danger is very much greater than with light vessels.

868. Mr. *Kendall*.] As to the Filey Sands, have you paid much attention to their composition?—Yes, I have walked over the sands, and taken particular notice of their composition.

869. And you have come to the conclusion that they are the *débris* of the coast?—I have no doubt of it.

870. As far as Filey Brigg is concerned, is not that a natural breakwater?—It is, and composed of a hard rock.

871. Is it true that it forms a sort of angle; a sort of breakwater, and that there is no collection of sand there?—There is no collection of sand there at all; the rocks are bare and free from sand; that is one of the arguments which I use to show that the sand does not come from the seaward.

872. Suppose this plan to be accurate so far as the depth of the sand goes, then there is very little sand there off the Speetons and off Filey Bay?—There is no sand there.

873. Mr. *Augustus Smith*.] There is no movement of sand or shingle either north or south on this coast?—I can speak to this particular bay. There is not as regards Filey Bay. As regards the coast generally, if you go north of Scarborough, I should scarcely like to give an opinion.

874. There is no certain shift along the east coast of England like there is along the English channel, where you find the shingle carried from the west to the east?—That is the case in the English channel, but I doubt it here.

875. But there is no similar movement either north or south, or south or north, along the east coast?—There is none along that part of the coast that I am acquainted with; but as to the coast generally, I should not like to say.

876. I suppose generally the movement would be observed, would it not, from one end to the other, more or less, if it existed at all?—It would; my opinion is that there is none, or it would be well known.

877. With regard to the collisions off Flamborough Head, have you analysed the wrecks at that part?—I have. With regard to the collisions off Flamborough Head, I took them from the wreck chart; with regard to the wrecks generally between Flamborough Head and the Tyne, I deduced them from the published returns.

878. With respect to those collisions, have you ascertained how many have been between sailing vessels and steamers?—That I have not ascertained; but I may state from my recollection of the details, that there were very few collisions between steamers and sailing vessels.

879. As regards those collisions, a harbour of refuge would be of no importance?—Yes, it would on that part of the coast, for this reason; that the vessels instead of hanging about at Flamborough Head in order to avoid being obliged as at present to run back so far to the north, having Filey Harbour about five or six miles under their lee, would run into it, and thereby avoid the chance of collision.

880. Have you reckoned the number of vessels that have foundered according to the wreck chart, in this particular locality, which would have availed themselves of a harbour at Filey?—I have not; but there are a great many black dots there, which represent vessels foundering at sea.

881. That is wrecked a great distance off?—Yes.

882. They are supposed to be vessels far off?—Yes.

883. Then if they foundered so far off from the coast they could not have run into Filey?—They probably foundered there from having been disabled.

884. I am speaking of those outer vessels?—If you look at the explanation on the north part of the chart, you will find that the dots in the open sea represent vessels that have foundered or are missing.

885. But those outer dots are so far off that they must have foundered too far off for a harbour of refuge to have been of any use to them; they must have been much nearer in-shore to have used it?—No; because I think, with an on-shore gale, a vessel would be very glad to keep clear of the shore if she had no harbour to go to; naturally a vessel caught in an on-shore gale would get as much offing as she could, unless she had a harbour under her lee.

886. You have not calculated how many vessels, according to the marks, there

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there must have foundered too far away for making the harbour?—No, I have not.

887. With reference to the position of Flamborough Head, did you examine that also, as to the facility of erecting a harbour of refuge there?—I examined the charts; I did not go down to Flamborough Head; but there is nothing like an amount of facility there that would admit of anything being done at Flamborough Head.

888. It would be more sheltered from the north?—It would be more sheltered from the north; but seeing that the evidence given before the Committee last year went distinctly to the fact, that the greater number of wrecks occurred north of Flamborough Head, naturally one looks to the north side of Flamborough Head as the proper position for a harbour; the evidence of all the captains went to the same effect.

889. Would not that induce you to place the harbour of refuge exactly at that point which you found was the centre of the great mass of wrecks?—No; because the majority of those wrecks are of vessels which are driven back from Flamborough Head, and therefore the precise point where the wrecks occur is not a guide in determining the position where the harbour should be.

890. How have you ascertained that the greater number of those wrecks have taken place in the case of vessels that have run back?—The evidence that has been given and can be given by masters is most overwhelming in that respect. There is a petition to be presented, signed by 1,500 masters and mates and about 1,500 seamen, all in relation to Filey Bay, which petition goes directly to the importance of a harbour immediately to the north of Flamborough Head and to the eligibility of Filey Bay as the site for that harbour.

891. Does that petition go to the point that you stated; namely, to show that the greater part of those wrecks that have taken place on the shore north of Filey Bay has arisen from vessels that have been in fact driven back?—It does distinctly.

892. You say that vessels are wrecked now because they run back into the bight of Hartlepool Bay?—Yes.

893. Suppose they should not be able to get to Filey Bay, or that they should overshoot it, where are they to go then?—With reference to overshooting, I should perhaps explain that the vessels come from the north.

894. But suppose that they have, from a sudden cause, left Flamborough Head; you say that the wrecks take place by their running back to their respective ports, and that they are lost north of Filey Bay?—Yes.

895. Suppose some of them do not make your harbour of refuge, what is to become of them?—If a vessel is north of Filey Bay and cannot make Filey Bay, she will have to run to the north to the Firth of Forth; that is the only port she can go to. I mentioned, in my evidence, that there were vessels off Flamborough Head anchored under Speeton Cliffs on the 6th of February last; that they came down to Flamborough Head two or three times and had to go back again, and they have been heard of a fortnight since in Leith Roads.

896. Could not they have run as easily to a harbour of refuge in Hartlepool?—No. I may say that the whole of those vessels bound south were loaded, and they were too deep to get in.

897. But if they run up to Leith, surely they can fetch Hartlepool?—They can fetch Hartlepool, but there is no depth of water for them at present.

898. But supposing that a harbour of refuge were constructed according to the plan which was laid before the Committee last year, in which they could have a depth of water equal to Filey, would they not more easily run there?—The depth of water at Hartlepool is not so great as at Filey. The greatest depth of water there was 26 feet, which is certainly not large enough for a line-of-battle ship.

899. But quite deep enough for any of those vessels to which the casualties occur?—Yes, sufficient for the colliers; but the doubt in my mind is whether a harbour, such as that proposed in Hartlepool Bay, could be formed, or rather could be maintained; that doubt has been expressed by several persons; Mr. Calver has given evidence to that effect. The charts before the Committee will show that, in the 18 years from 1832 to 1850, there has been a shoaling to the extent of one fathom at Hartlepool.

900. That is, in Hartlepool Harbour?—I beg pardon; that is in the bay. A line

line drawn from Hartlepool Heugh to the east end of the Long Scar Rocks, would run along the edge of the three-fathom line.

901. The Long Scar Rocks are below Hartlepool?—They form the south part of Hartlepool Bay.

902. But the breakwater was a breakwater a long distance out in the sea, and was unconnected with the shore?—I have seen no such design. The only design ever given for a harbour of refuge at Hartlepool, was a design given by Mr. Rendel, one arm of which ran along the Long Scar Rocks.

903. Then you are not aware of the plan laid before the Committee last year which proposed to have an isolated breakwater some distance from the shore?—There was a proposal, but I have seen no plan. The evidence given by Captain Veitch was to the effect that there would be a considerable risk of silting up.

904. Sir *Frederick Smith*.] Would the breakwater which you propose give sufficient shelter from the south-east wind?—Yes, it would give a very large amount of shelter from the south-east wind. The amount of that shelter will be shown by the figures on the right-hand side of the chart.

905. Mr. *Kendall*.] You have stated that you thought Filey was most important with regard to national defence, will you state why you think so?—On account of its being the most salient point along the whole coast. I should state that Flamborough Head and Filey Bay will be as nearly as possible midway between the Firth of Forth and the Thames. Drawing a line north, between Flamborough Head and the Tyne, a distance of 70 miles, and drawing a line from Flamborough Head to the entrance of the Wash, which is 70 miles south, it will be seen that those two lines will cover every part along the coast, between the River Tyne and Lynn Deep, or the Wash. By drawing a straight line, joining those two extreme points, we shall see that Flamborough Head is 15 miles in advance. By drawing a north and south line through Filey Bay, we shall find that it is 36 miles in advance of Hartlepool, which is in the bottom of the bay, and so giving Filey an advantage in point of steaming of something like from three to four hours for fast vessels. The salience or prominence of Flamborough Head, which is the south headland of Filey Bay, is a most important advantage in a strategical point of view.

Mr. *Mark Clark*, called in; and Examined.

906. *Chairman*.] YOU are a master mariner, I believe?—Yes.

907. Where have you chiefly been accustomed to sail?—I served my time in the coasting trade, between London and Newcastle; and I have been about 30 years master in the trade.

908. Principally in the coasting trade?—Yes, for the last 15 years.

909. Where?—From Hartlepool.

910. Have you been in the coal trade?—Yes.

911. As the master of a collier?—Yes.

912. Do you know anything particular about Filey Bay?—Yes; I have been in the habit of bringing-up there for above 30 years, in all parts of the bay.

913. What part of the coast between London and Newcastle do you consider the most dangerous?—The most dangerous part is between Flamborough Head and Redcar; I should consider that the most dangerous for a ship going ashore in an easterly gale.

914. According to your experience, is there much more danger to a laden ship than to a light ship?—A great deal more.

915. Do the greater proportion of accidents at sea happen to laden ships?—The great proportion of them.

916. Will you describe to the Committee in what way, according to your experience, accidents most generally happen to colliers?—They generally leave in fleets; they get up as far as Flamborough Head, and sometimes they anchor there for two or three days. I have been there with 300 or 400 ships; and we bring up with the wind southerly, and when the wind gets to south-east, we are forced to leave Filey Bay; that is under the head; the south part of the bay.

917. Are you often caught with a southerly wind before you get as far as Flamborough Head?—Sometimes we are, but in general we reach Filey Bay.

918. You do not often leave your port unless the wind is so, that you think you can reach Flamborough Head?—We do do not think of leaving unless we think we can reach Flamborough Head.

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919. In the majority of cases, do you reach Flamborough Head before your course is stopped?—Yes, nine times out of ten.

920. Suppose at Flamborough Head you encounter a strong south-easterly or southerly gale, what course do you take?—With a southerly gale we can ride under Flamborough Head.

921. With a southerly gale you would not want to go back at all?—No.

922. With a south-easterly gale, what would you do?—I could ride with the wind at south and by east under Speeton Cliffs.

923. You mean that the cliffs at the south would be a sufficient protection for you?—Flamborough Head would.

924. You would come a little under the coast?—I should have Flamborough Head nearly south-east of me.

925. There you would ride till the gale was over?—Yes, or until the wind got eastward; with the wind eastward I should have to go to sea.

926. What is the gale you think most dangerous off Flamborough Head?—The wind at east and east-by-north is the most dangerous off that coast.

927. With an east wind, or a north-east wind, what would you do?—With a north-east wind I could go to the southward, or go to the Humber.

928. With a north-east wind you would go on your road to London?—Yes.

929. If you had an east wind, with a point to the north, you would go into the Humber?—Yes; if I was off Flamborough Head I should, if I wanted to go.

930. What is the wind that would induce you to run back?—A south-east and by east; that is, if I had to run back to port; but it is not the most dangerous wind.

931. Is it common for ships that are lying off Flamborough Head, if a gale comes on from the south-east, to run back?—Yes; if it comes on very heavy weather it is; small ships especially; they can get shelter in a tidal harbour.

932. They run for Hartlepool Bay?—Yes; I have run three times back in one voyage.

933. Under what circumstances is it that the wrecks take place?—That is by loaded ships running back in general, and taking the harbour when there is not sufficient water.

934. Are there many losses by collision?—Yes; very often ships will lie for 24 hours off Flamborough Head with their heads off the shore, perhaps not knowing which way to go, with close-reefed topsails; they will lie there for two or three days. Ships above 14 feet draught cannot go into the tidal harbours.

935. Then the greatest amount of losses occur in those vessels attempting to make the tidal harbours when there is not water enough?—Yes; the great mass of wrecks occur from that cause.

936. What is your opinion about Filey Bay as a place for a harbour of refuge for vessels lying off Flamborough Head?—I think it the likeliest place of any on the coast that I know of for a harbour of refuge, certainly.

937. Will you state the advantages which it offers?—In the first place, it is partly formed by nature.

938. What are the peculiar advantages which it would offer to vessels when at sea in a gale of wind?—We could run to it at any time when the wind was so that we required shelter.

939. Do you mean that it would be better than a harbour in Hartlepool Bay?—Yes, because it is just about the point where all the loaded ships are caught.

940. The loaded ships are all caught off Flamborough Head, are they?—Mostly so; in general they get there.

941. Are they not very often stopped before they get as far as Filey Bay?—Sometimes they are, but not often; not with an easterly wind.

942. Are they not sometimes obliged to put back before they reach Filey?—I never was. I could always reach Filey.

943. Have many other vessels been obliged to put back before they reached Filey?—I have no doubt that some have, but not many, I should say.

944. You think the great majority of vessels that do put back pass Filey before they put back?—Yes; most of them have reached Filey.

945. Then do you think that a harbour of refuge at Filey would be applicable for the great majority of laden vessels on their way to the south that are obliged to put back?—I think it would.

946. What is the most dangerous gale for vessels going to the northward?—

East

East and by north, to east and by south is the deadliest wind for any vessels loaded or unloaded.

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947. Would a harbour at Filey or a harbour at Hartlepool be best for vessels going northward?—I do not know. There is Bridlington Bay, which is a very good shelter for light vessels.

948. Suppose a vessel were further north than Filey Bay, going north?—She could always run back to Filey with a northerly wind.

949. But could she not more easily run into Hartlepool Bay?—No, she could not get there at all.

950. Not with a north-east wind?—Not with a north-east wind, unless she had a good offing.

951. But with an easterly wind?—With an easterly wind she probably might.

952. Then it is your opinion, from your experience in the trade, that the greatest proportion of laden vessels lost in any part of the North Sea, had already reached Flamborough Head before they turned back?—Yes, in general; Flamborough Head is what I call the joining part of the coast for all the colliers and ships coming from the Scotch ports, and also from the Baltic; they all join together at Flamborough Head, that is the cause of a great many collisions.

953. We see a great many accounts of vessels lost off the Wear and the Tyne, is it the case that most of those vessels have already been up as far as Flamborough Head and have been driven back?—Most of them.

954. Then it is in being driven back from Flamborough Head to the ports from which they sailed, that most of the losses take place, either from collision or foundering at sea?—Yes.

955. Admiral *Duncombe*.] During the number of years that you have navigated the North Sea, have the greater number of vessels lost been loaded or light vessels?—The greater number loaded.

956. Has it often happened to yourself in going south with a loaded collier, that you have reached as far as Flamborough Head, and then, from stress of weather, been obliged to run back to some northern port?—Several times; that has happened, in one voyage, three times.

957. You mean, that in one voyage you reached Flamborough Head, and had to run back three times?—Yes.

958. Where did you run to?—To Hartlepool; then it was only a small vessel.

959. In all these cases, if there had been a harbour of refuge at Filey Bay, you could have sheltered there?—Yes.

960. Do you know, of your own knowledge, that the greater number of vessels wrecked off the northern ports had reached as far as Flamborough Head, and have been wrecked in running north?—I do.

961. You know that of your own knowledge?—I do.

962. Does not it happen sometimes that light vessels going north can get round Flamborough Head, but still cannot weather Whitby?—Very frequently, in gales of wind easterly.

963. In that case, would a harbour of refuge at Filey Bay be of some service to them?—That is the only place where it would be of service to them.

964. Has it frequently happened to you, in your voyages, that a great number of vessels have been congregated with you at the same time off Flamborough Head?—As many as 300 or 400 vessels at the same time.

965. And frequent collisions have taken place off Flamborough Head?—Yes, frequent.

966. The course in which you have traded has led you to know Hartlepool?—Yes, I have traded there for many years.

967. During that number of years has it had a disposition to silt up?—I think it is about four feet shallower now in the middle of the bay than when I first knew it.

968. Does it ever happen that vessels in Hartlepool can only take in a part of their cargo, for want of depth of water?—I have known ships bound to the Indies do that, ships drawing 19 or 20 feet water, one went outside the line of the Heugh, and loaded up, another to the Humber.

969. You have been engaged also in the Baltic trade, have you not?—I have.

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970. From your experience in these seas is it your opinion that Filey Bay is the most eligible spot for a harbour of refuge, both for the Baltic trade as well as for the collier and coasting trade?—It is; I have been caught with a vessel from St. Petersburg, drawing 17 feet off Flamborough Head, and been driven back off Tynemouth.

971. Does it often happen that a fleet of colliers going south take shelter under Specton Cliffs, and the wind changing more to the eastward, they are obliged to slip their anchors and run back?—Yes; we have had a good many lost from that cause this winter.

972. From the wind shifting they could no longer lie under Specton Cliffs?—Yes; if the wind gets south-east-by-east they lose the shelter.

973. Have any of those vessels been lost in running north back again?—Yes. One vessel left Filey Bay and foundered off Whitby, running back, and several others were lost at the same time.

974. I believe you are a native of Bridlington, are you not?—Yes.

975. Have you any particular feeling in favour of Filey beyond your experience on the coast, and thinking it the best spot for a harbour of refuge?—No, that is all.

976. Lord A. V. *Tempest*.] You stated that on three occasions in one voyage you had to run back to a north port; will you state to the Committee how the wind was on these occasions?—The wind was about south-east.

977. And therefore it is with reference to a south-easterly gale that Filey Harbour would give refuge?—It would to all loaded ships off Filey in a south-easterly gale.

978. I understood you in the former part of your evidence to say, that in a south-easterly gale you would ride it out?—That is in the present state of the bay. I mean that with a refuge, a ship would get in with a south-east wind.

979. I understood you that if you were caught in a south-easterly gale off Flamborough Head you would ride out that gale there, sheltered by the protection of Flamborough Head?—No, not south-east; south-south-east; that is two points more southward.

980. Then, with a south-easterly gale, what would you do if you were caught in the gale?—I should be obliged to weigh and stand out to sea, unless I had a small vessel, which could get into a tidal harbour.

981. If you had a large vessel you would ride it out; if you had a small vessel you would run to a northern port?—I could not ride it out; I must run right out to sea.

982. Have you seen the plan proposed for the construction of this harbour?—I have seen the plan.

983. Do you conceive that the pier that is proposed there would give a safe shelter in the event of the harbour being used during a south-easterly gale?—Yes, a south-east gale would be right off the breakwater.

984. But, as far as you have seen this scheme, there is no pier giving shelter from the south-east?—None from the present natural pier.

985. Therefore, I presume, if this scheme was carried out, this harbour would not be a very commodious one in the event of a wind coming from the south east?—Yes, it would be a sufficient shelter with the wind from the south-east.

986. Sir *Frederick Smith*.] Supposing only one harbour made along that coast, to which point of the coast would you give the preference from Yarmouth Sands down to the Tyne?—I should say Filey is the best.

987. In preference to all others?—In preference to all others, because that is just about the point where all the loaded colliers are caught.

988. You want to find protection for vessels going to the south that cannot round Flamborough Head?—Yes.

989. But still you think that those vessels can get to Filey; what is the distance from Flamborough Head to Filey?—Not more than eight miles.

990. Then, all the difficulty is in the eight miles distance?—Not altogether; but the vessels generally get to Flamborough Head.

991. They cannot get beyond it?—There is a very cross sea comes out of Bridlington Bay, especially with the ebb tide.

992. In fact, it is the cross sea and the ebb tide, more than the wind, that oppose you?—Yes; there is right off the Head a cross sea.

993. Then, after you have got beyond Flamborough, what is your next difficulty



culty going southward?—There is no particular difficulty until we come to Yarmouth Roads.

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994. You would not find the same protection at Yarmouth Roads that you found at Flamborough when you get the protection of Filey; you would have the same difficulty then?—No; I could go right to London with the wind south-east. I should have more shelter in Yarmouth Roads; there are so many sands. I get shelter as soon as I get past Cromer.

995. In each case, when you were obliged to go back, had you got to the southward of Filey?—I have been within three miles of the Humber and could not get in.

996. Did you get right round to Hartlepool then?—No; I got into Filey Bay; that was with the wind at south.

997. Mr. *Hassard*.] You said the vessels were all together under Flamborough Head; is it not the case that you get under the lee of Flamborough Head as close in as you can for shelter?—With a southerly wind.

998. That is the reason you go so close there?—Yes.

999. I suppose that is to the south-east of Filey Bay, between that and Flamborough Head, under the lee of the head?—Yes.

1000. The heavy sea is outside Flamborough Head?—Outside Flamborough Head, just when you come to the south.

1001. Do not you think it is too much to say that most of those loaded vessels which have been lost, say off the Tees and Sunderland, had got as far as Flamborough Head?—I should say nine out of ten had.

1002. Mr. *Clay*.] On this occasion, when you were disappointed three times in getting past Flamborough Head and had to run to the north, were there many other vessels in the same predicament, or were you worse off than the others?—Some more and some less.

1003. I speak of this particular occasion: was your vessel the only vessel endeavouring to get south, on this occasion, when you were three times obliged to run to the north?—There were 600 or 700 sail on the passage at the time between the north ports and London.

1004. Were they all as badly off as yourself?—Some went to Leith Roads, some to the north ports.

1005. Did you get to London as soon as any one of them?—I was the third ship there.

1006. And they had all been in similar distress?—Yes; some took shelter in Leith Roads and some in the Humber. I think there were nearly 500 sail in the Humber.

1007. Is the great danger the great cause of wrecks to ships, the having to run back, being unable to get round Flamborough Head?—It is.

1008. Of course Filey Bay being so much nearer than Hartlepool Bay, would be an advantage; if there was a harbour of refuge at both places you would run for the nearest?—Yes.

1009. Supposing both were harbours of refuge, is there any wind which would enable you to make Filey Bay when you could not get into Hartlepool?—Sometimes, in some instances there is.

1010. Are there some winds which under some circumstances would make it impossible for you to get into Hartlepool, but possible for you to get into Filey?—Yes, with a strong northerly wind I could get to Filey, with a strong northerly wind I could not get to Hartlepool.

1011. Is the reverse the case, that there would be any wind under any circumstances which would make it impossible for you to get into Filey Bay, but possible for you to get into Hartlepool?—Yes; I might be caught shorter, and could not get round Whitby; then with an easterly wind I should be forced to go to Hartlepool.

1012. You are a native of Bridlington; the average of deep water at Bridlington is very small, is it not?—By the outer end of Smithic Sands it is shoal.

1013. Do you know how many acres of water there are at Bridlington; two or three fathoms deep?—I cannot say.

1014. Is the harbour silting at all?—I believe the bay about a fathom shallower than when I first knew it.

1015. Is the holding ground good or bad?—The outer and deeper part is bad; it is chalk.



Mr. M. Clark.

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1016. What is the other holding ground?—Very good holding ground; it is chiefly clay, but shoal water.

1017. Mr. *Liddell*.] What is the average tonnage of vessels employed in the coal trade?—I should say about 150 tons.

1018. As to light vessels at Flamborough Head; light vessels go in large numbers together, do not they?—Yes.

1019. Suppose a number of light colliers were caught in a south-easterly gale anywhere to the northward of Filey Bay, what would they do?—They must go back to their tidal harbour if they do not get refuge at Filey.

1020. Can they keep to sea?—If they choose they can; with a south-east wind they can; any vessel can keep the sea with a south-east wind.

1021. And they do, in fact?—They do; large ships are forced to do it.

1022. I want to know what are the circumstances under which a large number of vessels are driven on shore the whole way between Filey, and we will say the north of Sunderland?—That is by being caught by east-north-east, and east-and-by-north gales; they cannot carry sail, and being light in ballast, they drive ashore very often.

1023. Are not a large number of vessels lost every year under those circumstances?—There have been a great many, but not so many this last year.

1024. How do you account for that; were there not many lost in the last gale within the last six months?—Not many light ships.

1025. Chiefly loaded vessels?—Chiefly loaded vessels, in going back to the tidal harbours.

1026. Is it not the general practice of a master when he is baffled, bound to any particular point, to run to the port to which he belongs?—It is not. I should not consider anything of the sort myself. I should run to where I thought was the best refuge.

1027. You have accounted for the large number of wrecks which take place all about Newcastle, Sunderland, Seaham and Hartlepool by the fact of their having been baffled at Flamborough Head, and forced to run back?—Yes.

1028. Mr. *Dodson*.] What is the average draught of water of the colliers when they are laden?—About 14 feet.

1029. What is the draught of water of the same vessels when they are light?—About seven, eight, or nine; that depends upon the build of the ship.

1030. When they are light, they have much greater facility in getting into the tidal harbours?—Yes.

1031. Mr. *J. H. Gurney*.] You do not consider Bridlington Bay a safe harbour of refuge for laden vessels?—No.

1032. Is it a safe harbour in all winds for light vessels?—As far as east-north-east it is.

1033. But not for laden vessels?—Not for laden vessels.

1034. Mr. *Kendall*.] I think you have known Filey Bay for some time; is there any filling up?—Not the least.

1035. Have you seen the plan of the proposed harbour?—I have.

1036. Have you any fear at all, if that is carried out, of any filling up?—Not the least.

1037. How is that as regards Hartlepool; do you know Hartlepool well?—I have been many times there.

1038. From your own knowledge, is it filling up at all?—Yes; it has filled up four feet since I have known it, generally in the bay.

1039. Have you ever seen the proposed plan of a breakwater there?—No, I have not.

1040. It has been filling up, you say, since you have known it?—Yes; it appears to fill up mostly in an easterly wind; the bars are shoaler.

1041. Mr. *Augustus Smith*.] Has the water for some distance out in Hartlepool Bay become shallower?—Yes.

1042. For what distance?—In a line with the Heugh and the Long Scar Rock.

1043. But further out, has the water shoaled there?—I cannot say as to that exactly; I never tried it much; we do not often bring up outside, in the open sea.

1044. As far as your experience goes as to wrecks upon the coast generally, do they occur to vessels in ballast or vessels in cargo?—To vessels in cargo generally.

1045. The greater part of the wrecks are vessels in cargo?—Vessels in cargo.

1046. Sir

1046. Sir *Frederick Smith*.] I believe you stated just now that any vessel can keep the sea in a south easterly gale?—Yes; there is no fear of her driving ashore if she likes to keep the sea.

Mr. *Mark Clark*.

11 March 1858.

Mr. *Henry Coston*, called in; and Examined.

1047. *Chairman*.] WHAT are you?—A Master Mariner.

Mr. *Henry Coston*.

1048. Where have you been in the habit of sailing?—I have been 21 years master; two years in the coasting trade and 19 years in the Baltic trade.

1049. Where do you sail from?—From Lynn to various ports in the Baltic.

1050. Always from Lynn?—Yes.

1051. To what ports did you sail when you were in the coasting trade?—Between Newcastle and Lynn for years.

1052. Between Newcastle and Lynn which was the most dangerous part of the coast according to your experience?—About Flamborough Head.

1053. Have you known a great number of vessels accumulate there?—Yes.

1054. Have you known a great number of losses of laden vessels that have left ports in the north?—Yes.

1055. Had the greatest number of those vessels reached as far as Flamborough Head, do you think, before they were lost?—Most of them had.

1056. How have they been lost?—By running down; and also when they are contending with strong southerly gales they are driven to the northward; and last of all, they have gone into Tees Bay, and been lost in that way.

1057. They have been lost after they have been driven back from Flamborough Head?—Yes.

1058. Did you ever encounter a severe gale before you came to Flamborough Head?—Yes; I encountered a gale of wind in 1848. I was from Hartlepool, and I was driven by strong south to south-east gales to the northward.

1059. Were you caught in those gales before you reached the Head?—Under the Head.

1060. Before you got as far as Flamborough Head?—No; we got as far as Flamborough Head before the gale took us.

1061. But coming from the coal ports, have you ever been caught in a gale of wind before you came to Flamborough Head, and been driven back?—Yes.

1062. Before you reached Flamborough Head you have been driven back by a gale?—Yes.

1063. In that case, if there had been a harbour of refuge at Filey, you could not have got to it?—No, at times I could not; but I have kept the sea on those occasions. I have kept the ship out in the offing, so that I have had the Firth open.

1064. When you have met with a strong north-east gale further north than Flamborough Head, you have kept the ship to sea?—Yes.

1065. Have you ever put into Hartlepool Bay?—No, not with a loaded ship; my ship drew too much water; I once contended ten days at sea, and then bore up for Leith Roads.

1066. Have you ever put back into Tees Bay?—Never.

1067. Have you ever taken any of those tidal harbours when you have been caught by a south-east wind?—Not loaded.

1068. Why not?—Because my ship was too heavy a draught of water; it was too great a risk.

1069. What was the size of your ship?—250 tons, drawing 14 feet.

1070. She was larger than the average size of colliers, an unusual size?—Yes.

1071. In that case you had nothing for it but to run for the Firth?—Yes.

1072. In the Baltic trade, in sailing from Lynn to the Baltic, what was the worst gale you had to encounter?—I have encountered strong easterly gales and westerly gales at various times.

1073. Have you ever put into any port on the east coast of England for safety?—Not once.

1074. Were you ever driven up the Firth of Forth?—I was at one time driven up the Forth after I came out of Hartlepool, bound for Cronstadt.

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1075. That

Mr. Henry Coston.

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1075. That was when you left Hartlepool, loaded?—Yes, bound to the Baltic.

1076. Have you ever encountered any gales in coming home from the Baltic?—Yes.

1077. What are the most dangerous gales on that voyage?—North-east gales; north to north-east gales make the heaviest sea.

1078. Have you ever had occasion to take shelter in that case?—No; I have always been bound to the southward, and always got my passage before those gales.

1079. Are you of opinion that there is a harbour of refuge required for the east coast of England, anywhere?—Yes.

1080. What part of the coast, according to your experience, is the best point at which to establish a harbour of refuge?—I should prefer Filey Bay.

1081. Will you state the reason why you prefer Filey Bay?—When we sail from a north port, the wind invariably carries us to Flamborough Head, and then if the wind backs round to the southward, we hang under the Head for days and days together, and if there was a harbour of refuge, such as Filey, under my lee, I should go there, and there would not be that risk to life and property that there is now.

1082. That would refer to coming with a loaded coal ship from the north?—Yes.

1083. With regard to the Baltic, would that harbour be of use?—Coming from the Baltic, if the wind is southerly, we generally make for the Head; we generally come in at Flamborough Head.

1084. Then, if you were lying off Flamborough Head, coming homeward from the Baltic, you would have the same advantage at Filey Bay as in coming from the northward from the coal ports?—Yes, it would be under my lee.

1085. Were you ever at Filey?—Only once.

1086. Admiral *Duncombe*.] Is it not the case, generally speaking, that colliers leaving the coal ports do so under such favourable circumstances that nine times out of ten they reach Flamborough Head without any impediment?—Yes.

1087. That is where the difficulty, generally speaking, begins?—Yes.

1088. If the wind chops round, you cannot get round the Head?—No.

1089. For the time you take refuge under Speeton Cliffs?—Yes.

1090. And if the wind backs at all you are no longer safe there, and you are obliged to cut and run?—Yes.

1091. Has that happened to yourself?—No.

1092. You never have taken refuge under Speeton Cliffs?—No, only once, when I was before the mast.

1093. But have you not seen vessels there?—Yes, they frequently ride there.

1094. Since you have been in the Baltic trade, Flamborough Head is either the point of departure or the place which you try to make in coming home?—Yes.

1095. Does not it frequently happen that you see a large number of vessels congregated off Flamborough Head wind-bound?—Yes.

1096. And a harbour of refuge in Filey Bay would be a great advantage to them?—Yes.

1097. Are there not a great number of vessels in the Baltic trade that bring timber home to the east coast which necessarily make Flamborough Head?—Yes; it would not do to make more to the southward because the land is so low.

1098. You have had experience both in the Baltic trade and the coal trade, and you think there is no place so advantageous for a harbour of refuge as Filey?—Yes.

1099. Lord *A. V. Tempest*.] Is it not the case that Flamborough Head itself is a considerable protection to ships there?—Yes, they all lie under the Head; and there is great danger of ships coming down coming into collision,

1100. Flamborough Head at present affords considerable protection to ships under the circumstance of a south-east wind?—No, there is no protection at all with a south-east wind for them; it is a south-south-east.

1101. You consider that this harbour would give refuge to ships under those circumstances?—Yes.

1102. Is it not the case that a great number of wrecks take place in an embaying wind, by heavy laden colliers not being able to get out of the bay, and not getting up so far as either Flamborough Head or Filey?—No; ships coming out

out of the north ports never leave the ports unless the wind is so that they can get an offing. Mr. Henry Coston.

1103. Have you found yourself in the circumstance of being detained off Flamborough Head on various occasions?—Yes. I have been off the Head in southerly gales; in south-east gales you are obliged to put the ship under close-reefed topsails, and go out to sea. 11 March 1858.

1104. Mr. *Clay*.] According to your experience, have very few of the wrecks which have occurred there been of vessels that have been caught in the bay?—Very few.

1105. Almost all have been vessels which have been obliged to bear up?—Yes.

1106. Mr. *Liddell*.] Suppose a vessel bound from the port of London back to her own port in the north is caught with a head wind at Yarmouth, what does she do then?—She must go back to Yarmouth Roads.

1107. Do Yarmouth Roads afford shelter at present?—Yes.

1108. Suppose a vessel is caught north of Flamborough Head with a north-east gale, what would she do then?—If Filey Bay was a harbour of refuge, I should prefer getting in there.

1109. She could with perfect safety make Filey Bay, supposing a harbour of refuge existed there?—With the wind to the north-east she would sail into the port with safety.

1110. Supposing she were caught north of Filey Bay by one of those heavy south-easterly gales, would the description of vessel usually employed of about 150 tons be able to keep the sea?—Under some circumstances she would not, because many of those vessels in heavy south-east gales of wind shift their ballast, and that of necessity compels them to run down to those tidal harbours.

1111. And it is in making those tidal harbours that they are lost?—Yes; there was a circumstance about three weeks back of a ship belonging to Lynn which was bound to Sunderland, and she was caught by an easterly gale; the sea was so high that the captain considered it was not prudent to take Sunderland; he kept the ship out in the sea, and he got to the Firth, and still lies in the Firth.

1112. Would a harbour of refuge at Filey Bay have been of any service to that vessel under those circumstances?—Yes, it would.

1113. Mr. *J. H. Gurney*.] You consider, then, being able to speak to the coasting trade and to the Baltic trade, that a harbour of refuge at Filey would be of great advantage both to the one and the other?—Yes.

1114. And on those many occasions which you have known of ships being driven back from opposite Flamborough Head to the Leith Roads or to the Firth, of course their going back under those circumstances was attended always with considerable risk?—Yes.

1115. You are aware that a great number of the wrecks which occur north of Flamborough Head occur in consequence of the vessels being so driven back?—Yes.

1116. That has come within your experience?—Yes.

1117. With reference to vessels coming from the Baltic, is it also within your experience that such vessels frequently require a harbour of refuge in the neighbourhood of Flamborough Head?—Yes.

1118. Bridlington Bay is not suitable for vessels coming from the Baltic?—No.

1119. Did I understand you rightly to say that on one occasion you took refuge yourself in Bridlington Bay?—I have done so.

1120. Were you able to remain there?—No, I brought up in Bridlington Bay with the wind to the northward; and after being there 24 hours, the wind veered round to east-north-east. The ship then driving from her small anchor, I let go my best anchor, and after 24 hours' riding, she broke from both anchors.

1121. That resulted, of course, in considerable risk to the vessel?—Yes.

1122. In that case, if there had been a harbour of refuge at Filey, could you have taken advantage of it?—Yes; and I should have been sheltered from this wind, which I was exposed to at Bridlington Bay, which was a wind east-north-east.

1123. You could have gained the harbour at Filey, and having gained it, you would have been safe there?—Yes.

Mr. *Henry Coston*.

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1124. And that is not an unfrequent thing with vessels trading from the Baltic to ports on the eastern coast of England?—No.

1125. Mr. *Augustus Smith*.] You brought up, I think you said, in Bridlington Bay; that was to the southward of Flamborough Head?—Yes.

1126. What is the nature of the anchoring ground there?—Some loose chalk ground.

1127. Do you mean to say that between Bridlington Bay and Flamborough Head, a vessel cannot ride in safety from a north-east wind?—I said an east-north-east wind; it blows right along the land.

1128. Supposing there was a breakwater from the Head, could not a harbour of refuge be constructed there?—There would be very great difficulty in vessels getting in and out.

1129. More so than if a similar harbour were constructed at Filey?—More so, because there is no tide to contend with in Filey Bay; there would be a strong tide to contend with in Bridlington Bay.

1130. How does the tide set in Bridlington Bay?—It sets about north-east and by east and south-west and by west.

1131. Does the tide run stronger in Bridlington Bay than it does in Filey Bay?—Yes.

1132. Suppose there were a harbour of refuge at Hartlepool, and a harbour of refuge at Filey, in any circumstances under which a vessel wanted a harbour of refuge, could she not run as easily to Hartlepool as to Filey?—No; if I was the length of Flamborough Head to the northward, I should not like to run back again; I could get out with a north-east wind from Filey, when I could not get out from Hartlepool.

1133. But are there any circumstances in which you are likely to be able to take Filey when you could not also run to Hartlepool?—I could not run to Hartlepool, though I could to Filey, with a loaded ship.

1134. Why not with a loaded ship?—Because there would be great danger when she got to the bar of striking upon it.

1135. That is, if the harbour remain as it is now?—Yes.

1136. But I mean if there was a harbour rather in Tees Bay, whether that would not be in such a position that you could as easily take that as you could Filey?—I should prefer taking Filey on account of the broken water at the Tees in easterly gales.

1137. But supposing you got to the northward of Filey, under those circumstances would Filey be available?—In a south-easterly gale of wind of course I should be bound to go to Tees Bay. If I was to the northward of Filey, with a strong south-east gale, I could not contend with it; I must be driven to the northward.

1138. Could you in any case in which you could run to Filey equally well run to Hartlepool?—Yes; but I should prefer to run to Filey, being much less dangerous to life and property.

1139. Supposing you were to the northward of Filey?—I should not let the ship drive past a port of refuge. If we could get the vessel into a place of safety we should never let her drive past it.

1140. But you might do so by accident?—Yes.

1141. *Chairman*.] You stated, I think, that your Baltic voyages have been confined to Lynn?—Yes.

1142. Therefore you say that Flamborough Head is your starting point?—Yes, we make our departure from it.

1143. And you make for the Head coming homeward?—Yes.

1144. If a vessel were going from the Thames to the Baltic she would not go near Flamborough Head, would she?—No; but it is prudent for ships bound from the Baltic to London in the fall of the year to make for Flamborough Head, because in the fall of the year we generally have very thick, hazy weather, and if we go too far to the southward, and we get hazy weather, we may get into difficulty; that is, ships coming home from the Baltic; but ships bound for the Baltic from the Thames generally leave Orford Ness.

*Jovis, 18<sup>o</sup> die Martii, 1858.*

## MEMBERS PRESENT.

Mr. Baring.  
Mr. Dodson.  
Admiral Duncombe.  
Sir James Elphinstone.  
Mr. Joseph Ewart.  
Sir Robert Ferguson.  
Mr. J. H. Gurney.  
Mr. Hassard.  
Lord John Hay.

Mr. Kendall.  
Mr. Macartney.  
Mr. Philips.  
Mr. Augustus Smith.  
Sir Frederick Smith.  
Lord A. Vane Tempest.  
Mr. Traill.  
Mr. Wilson.

JAMES WILSON, Esq., IN THE CHAIR.

Captain *William Louis Sheringham*, R.N., called in; and Examined.

1145. *Chairman.*] YOU are a Captain in the Royal Navy, I believe?—I am.  
1146. You have been employed as a surveying officer in the Navy?—I have.  
1147. What point of the coast has your attention been called to; are you well acquainted with the Bristol Channel?—Not the Bristol Channel.  
1148. With what part of the coast are you acquainted?—The St. George's Channel, from the Land's End to Holyhead.  
1149. Are you well acquainted with the north coast of Cornwall?—I am.  
1150. The north coast of Devon?—And the north coast of Devon; not in the Bristol Channel; not in Bideford and Barnstaple Bay, and that part of the coast.  
1151. The part of the coast below what is known as the Bristol Channel?—Yes; in point of fact, from the Land's End to Hartland Point, and from St. Bride's Bay to Holyhead.  
1152. You surveyed this part of the coast on behalf of the Government?—Yes.  
1153. Will you state to the Committee what part of the north coast of Cornwall, or rather the west coast of Cornwall, you consider to be the most dangerous in the navigation of those seas?—I consider that the most dangerous part of that channel is decidedly between the Land's End and the entrance to the Bristol Channel.

1154. That is between the Land's End and Hartland Point?—Yes.  
1155. Do you conceive that there is a great want of a harbour of refuge on that part of the coast?—I have no doubt of it whatever.  
1156. Having surveyed that coast minutely, what part of the coast are you prepared to recommend as the best place for a harbour of refuge?—In considering the question of harbours of refuge, I will take the liberty, if the Committee will permit me, to separate it. By a harbour of refuge I should understand a port that would offer the greatest facilities for a ship in distress to reach, under all circumstances. Again, there may be harbours of asylum or sheltered roadsteads, which is a very distinct question from a harbour of refuge; ships of large burden may really require, in adverse winds, to have some favourable roadstead to run for, and in many cases such might become a harbour of refuge. But if the object is really to reduce the number of casualties which we find upon the coast of England generally, then I consider that the best harbours of refuge would be afforded by the improvement of those ports which we already possess, and which are most likely to be available for the small vessels that navigate the coast. I find from the Admiralty Register of Wrecks which I requested to have, and which was put into my hands this morning, that there are 2,648 small vessels wrecked in five years; what I mean by small vessels is, those vessels which are under 200 tons burden; there are 367 vessels in the same space of time, above 200 tons, reaching to 350 tons; above 350 tons to 500 tons, I find the number to be 93; and above 500 tons, 113; clearly proving to my mind that the number of casualties that we see upon the Wreck Chart of the Admiralty.

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Captain  
*W. L. Sheringham*,  
R.N.  
18 March 1858.

Captain  
W. L. Sheringham,  
R. N.

18 March 1858.

rality really occur amongst the small vessels of the local trade of the different ports; and for that reason I would submit that if we can find any harbour upon the north-west coast of Cornwall, which already offers great facilities, it would be decidedly best to improve that harbour if we wish to afford an adequate protection against the number of casualties which occur. With that view I consider that no place offers a site so worthy of consideration, and so little expensive, as the harbour of Padstow.

1157. Then, in recommending Padstow, you do so with a view to the fact that the largest number of casualties are small vessels, and not large ones?—Yes.

1158. But is it not the case that a considerable quantity of shipping which leaves this country, or which arrives, foreign shipping of a large class, is frequently in distress, either as the ships are leaving the point or approaching the point; and would a small harbour of that kind be applicable for that class of ships?—In the first place, it would depend upon the extent of the improvements which that harbour was susceptible of. In the second place, I question whether large ships would require a refuge harbour very often on that coast. For instance, on leaving the Bristol Channel in a large ship, or further to the northward, if coming down the Irish Sea, I hold that the captain, if he exercised a wise precaution, would keep his ship as he approached the Funnel, or the entrance of St. George's Channel, rather over upon the weather shore, with a dangerous wind; say, from north to north-west. He would rather lay-to there, or run round the Land's End, which he could do with a wind at north or north-west, than he would run down a lee shore to seek an asylum. Of course, if he wants refuge, if he is in distress, he has nothing for it but to run somewhere for safety.

1159. Is it not the case that upon that coast there are frequently dense fogs?—I do not think more than upon any other; I should say not.

1160. Is there not any especial peculiar danger from fogs?—It has never struck me more on that coast than on any other.

1161. I see upon the Wreck Chart a very large number of wrecks marked off St. Ives. Do you know St. Ives?—I do.

1162. What facilities does St. Ives offer as a harbour of refuge?—St. Ives, in its present condition, offers very good shelter from the prevailing winds of the Channel; the prevailing winds of the Channel are south-west—to a very considerable degree; but to effect any work at St. Ives, so as to render it a harbour of refuge for a considerable number of ships, which it certainly is quite susceptible of, and which I think fully deserves the consideration of the Committee, would entail a large expense, and for this reason, that I think it would be positively mischievous to run the risk of spoiling already a good roadstead for the sake of making a small and inefficient harbour.

1163. Does the roadstead of St. Ives now afford shelter to all vessels?—It does with the wind from a certain quarter.

1164. From what quarter?—The wind from the south by west round by the south to east.

1165. Then a vessel being met going down the Channel by a strong south-west gale would be able to take shelter in St. Ives Bay?—She would have a foul wind. I do not think any large vessel would do so if she could possibly avoid it; that is, going down St. George's Channel.

1166. But, going down the Bristol Channel, if she encountered a strong north-west gale, she would be more likely to make to St. Ives Harbour, would she not?—Certainly I think not; because, if she had the wind from the north-west when she had made her offing, she could go to sea.

1167. But if a vessel going down the Bristol Channel was met with a strong south-west gale, would St. Ives be a suitable harbour for her to make for?—I apprehend that no ship would leave the Bristol Channel in a south-west gale.

1168. Suppose a vessel had left with a suitable wind, and was met afterwards with a south-west gale, what then?—Then I think she would run back to the Bristol Channel.

1169. Would Padstow be equally advantageous with St. Ives for a vessel caught upon that coast?—Certainly; in point of position I think more so.

1170. Can you tell the Committee what amount of riding-ground there would be at Padstow with the improvement you have suggested?—It depends upon the

the depth of water that is required; at present there is very little depth of water off the town of Padstow.

1171. How do you propose to get a greater depth?—By means of engineering improvements, which I think would deepen it up to a certain mark. I think you will never get very deep water at Padstow; but assuming we have now from eight to nine feet, I have no doubt that at low water you could get sixteen.

1172. Would that be by throwing out a breakwater?—If the Committee will permit me, I will put in this chart (*producing the same*). This is my survey of the harbour at Padstow.

1173. The water seems to be very shallow, from these marks you have got here?—Yes; that is at dead low water spring tides.

1174. Did you survey St. Ives as well?—No, I did not, but I know it very well.

1175. How did you propose to make deeper water; was it by dredging, or by means of scours and confining the water?—I think the natural scour of the back water would do much towards it if the tide was properly directed, and I would assist it by means of dredging.

1176. You would use the natural force of the back-water and the tide?—Yes; what is already scoured out of the channel, as shown by the chart, proves what might be done.

1177. Do you propose to do much by building piers?—Only to the amount you see on that plan; those are not piers.

1178. What are they; breakwaters?—Nor breakwaters. I call them guide-walls for the tide; a kind of guide up to half tide.

1179. An embankment carried up to guide the tide?—To guide the tide when it has the greatest scouring power; to confine it within a certain channel, after it has left the narrow throttle above, after which, we may assume that the action of the tide would decrease considerably.

1180. You say you have not surveyed St. Ives?—I have not.

1181. But you know it?—I know it.

1182. You have been in St. Ives?—I have been there frequently.

1183. Is the depth of water greater at St. Ives than at Padstow?—You may have any amount of depth of water, according to the distance that you run off the shore.

1184. But at a point near enough the shore to have the shelter of the roads, is the depth greater?—The present shelter of the roads has not a great extent of deep water.

1185. Is it deeper than the Padstow Harbour?—Decidedly; in point of fact, it is a portion of the coast with a salient point protecting it from certain winds; but it is a small bay.

1186. Is there any other point upon the coast to which you would refer, as a suitable place for a harbour of refuge?—Between what limits?

1187. You say you can only speak from the Land's End to Harland Point?—As to Cornwall.

1188. There is no other point, except that, that you think proper for a harbour of refuge?—Certainly not.

1189. You said you had surveyed that part of the Welsh coast, as high as Holyhead?—Yes, and I surveyed Holyhead also.

1190. What part of that coast do you consider the most dangerous?—It would be difficult to point out which was the most dangerous; for it is impossible to find, upon the whole coast of this country, any portion of it more beset with dangers.

1191. Then what part of the coast do you think offers the best place for a harbour of refuge from the dangers upon the coast?—It would be very difficult to say. Cardigan Bay and Carnarvon Bay are both very difficult to deal with. There is a bar harbour at Cardigan; that may be improved; the Menai Straits, or Carnarvon. There is Aberdovey; there is Barmouth, Tremadoc; all those are harbours to a greater or less extent; but I am afraid none of them to be much improved.

1192. Then am I to understand you that you have not made up your mind as to the best point?—I could not. The best that I know upon that coast, would be to improve St. Tudwall's Roads, which you will find at the North Horn of Cardigan Bay, and where ships now frequently take shelter in north-westerly gales of wind.

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1193. Admiral *Duncombe*.] Are you aware that in the Wreck Chart by far the greater number of wrecks shown upon it in the Bristol Channel, are higher up the channel, and more to the northward than the points you have alluded to, namely, between the Land's End and Hartland Point?—I think it is so.

1194. That was a part which I understood you were so far unacquainted with that you were not anxious to give evidence upon it?—In the Bristol Channel. I would rather not give evidence upon that point. I think I should be more likely to mislead the Committee than otherwise.

1195. Then take the coast of Wales, which you have been last examined upon by the Chairman. I understand you to say that that part is by far the most dangerous part of the coast of any in England?—I think it is.

1196. But there, also, the Wreck Chart shows a very much smaller number of wrecks than in any other part of England?—Yes.

1197. Consequently, I apprehend that ships are not often found in difficulty upon that part of the coast?—That is, because the trade is less; there is a less amount of trade, which, I think, would be very conclusive evidence that the number of casualties really depend upon the amount of the local trade.

1198. When you say a less amount of trade, you mean coasting-trade?—Coasting trade.

1199. You are then unprepared to say upon what part of that coast you would recommend any improvement being made by way of preventing wrecks?—Indeed it would be difficult; they have the harbour of Holyhead, and I think if Carnarvon Bar was effectually lighted, which I do not think it now is. I consider that there is no port that is susceptible of improvement at all that might not with very great advantage be considered; and the more those ports are improved, I am thoroughly persuaded the less the amount of casualties will be.

1200. With reference to Padstow, of which you have handed in a plan showing your own survey of that harbour, have you made any estimate of the projected works to carry out your views there?—Not any; but I should say that something about 40,000 *l.* would go far to do all that was necessary; I will not say that it will be sufficient.

1201. And with that outlay you conceive you might obtain a depth of water of about 16 feet?—I think you may; we have already that at the entrance of the harbour, and as much and even more for a considerable way up, and evidently if we have that amount from the present scour at the entrance of the harbour, I think we may presume, that if we could acquire that scouring power by engineering, we might then have the same depth higher up, because there is the same quantity of back-water passing through the channel, only it is not so well economised.

1202. St. Ives Bay you consider a good and safe anchorage from certain winds at the present moment?—I do; and well worthy of the consideration of the Committee for improvement; not exactly as a harbour of refuge for the trade of the country, but as an asylum for wind-bound ships, and what is a most important point of consideration, as a defensive, or national harbour for the country, situated as it is upon the threshold of one of our great channels.

1203. I understand you to say that the bay itself is so good a bay that it would be a pity to spoil it by making it into a harbour?—Into a small harbour; but I must not be misunderstood, because it is susceptible of being made a very fine roadstead, but at considerable expense, which, I think, might be well laid out; but I think it is not at all, as a harbour of refuge, to be placed in competition with Padstow; I think there is no comparison between the two; the one is really an important roadstead, which might be made a sheltered roadstead from all winds; the other would be really a harbour of refuge for the trade of the country, and considerably reduce the number of accidents that occur on this coast.

1204. Lord *John Hay*.] You are of opinion, I understand, that Padstow would only be useful for the local trade?—Not quite so; it would be eminently useful for the local trade, but it would be useful for any ship that could avail herself of it, there being sufficient water for her to take it.

1205. Have you any experience of this description of work which you have indicated?—I should be very sorry to pledge myself to any engineering question whatever.

1206. Then you have merely drawn this up out of your own head; you have consulted no engineer?—None at all.

1207. Is

1207. Is it true that in one portion of this harbour, where you expect to get 16 feet, there is at present only one foot?—No; I think you will find no part of that channel where there is only one foot, except as you approach the banks; but in the deep part of the channel you will find that it is deeper.

1208. Supposing these improvements were carried on, and supposing they were successful, what area of available water would there be of 16 feet deep?—It might be a lane of 300 feet wide; it might be 600 feet wide; it might be 1,200 feet wide; it would be utterly impossible even for an engineer to give any answer to that; I would not mislead the Committee; I would not pledge myself to it.

1209. You did not mention Milford Haven when asked about available harbours; is not that considered one?—I did not, because it is already known to be one of the finest harbours in the country. I believe there is nothing to be done there; it is already made.

1210. It is situated at that portion of the coast where there are a great number of wrecks. You think that Milford Haven is available, and it would be unnecessary for that part of the coast to have any refuge harbour?—In the immediate neighbourhood of Milford Haven certainly not, but if we go to the eastward, we are then in the Bristol Channel; upon that point I took the liberty of saying that I really could not speak, but if we go to the northward and travel into that deep and dangerous bight of Cardigan Bay, it is quite evident, with a south-west gale of wind, Milford Haven would not be available.

1211. There appear to be very few vessels wrecked in that very dangerous part of Cardigan Bay?—No; there is very little trade there; but I have been very nearly wrecked there, upon more than one occasion.

1212. You said, I think, in answer to a question of the Chairman's, that a vessel coming out of the Bristol Channel with a fair wind, and suddenly meeting the wind from the south-west, would run naturally back into the Bristol Channel; there is a great number of wrecks at the head of the Bristol Channel; where would vessels in that position run to?—To King Road, I suppose.

1213. Is there a proper protection there?—Yes, I think so; but again I must ask the Committee to do me the favour to receive whatever evidence I may adduce upon any question I may answer on that portion of the coast with very great caution; my experience is really not sufficient to entitle me to give evidence which would safely guide you in that respect.

1214. Mr. Hassard.] You said, I think, that St. Ives Bay was a good shelter anywhere, from south-west round to east?—Yes; of course, as it comes round to the eastward, it is an off-shore wind; then anywhere upon the coast is safe for anchoring.

1215. Are you aware from what quarter the heavy gales come principally?—I have no doubt about that; I extracted from my log many years ago a list of the prevailing winds for 1835, 1836, 1837, and 1838; but then these are only from the middle of May to the latter end of January. I find, by this, that we had 47 northerly winds in the four years; we had 132 north-easterly winds, 57 easterly winds, 85 south-easterly winds, and 40 southerly winds. What I mean by southerly winds is, a point on each side of the meridian, whether it is south-by-east or south-by-west; when they come either to eastward or westward of those points, I call them either south-east or south-west. We had 342 south-westerly winds, 97 westerly winds, 181 north-westerly winds, 75 variable, and 29 calms.

1216. But I ask as to gales of such a character as to be dangerous to shipping; which are they?—South-westerly and north-westerly gales.

1217. Suppose a vessel was lying under St. Ives, sheltered from the south-westerly gale, are you aware which way the wind generally shifts when the wind suddenly breaks?—Three times out of four to the north and north-west.

1218. If she was lying for shelter in St. Ives Bay, with a south-westerly wind, when the wind broke and went to the north-west would she not be caught upon a lee shore?—Most dangerously caught; the situation would be most imminent.

1219. Then, with the present shelter that exists there, she would be in a dangerous position, having run there for shelter?—No doubt of it.

1220. If a vessel is obliged to run to Padstow with a south-westerly wind, does not Padstow Harbour open almost due north?—Yes, or rather north-east.

1221. How could she get into it with the wind from the south-west, if she was obliged

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obliged to run for shelter there?—There would be no occasion; she would run up the channel; it would be a fair wind.

1222. Where would she run for?—If the ship was caught by a south-west gale of wind, and so deeply embayed as not to be able to run up channel, I mean the St. George's Channel, she should then run, if it was necessary, to the Bristol Channel.

1223. Where there?—I should say to King Road; but, however, that is part of the evidence which I again must say I cannot give with confidence.

1224. I believe there is no harbour in the Bristol Channel lower down than the King's Road; would she not have to pass a great deal of danger before she could reach the King's Road?—I must ask permission not to be closely examined upon the Bristol Channel; I may mislead you.

1225. She could not go into Padstow with a south-west wind, at all events?—I do not know that.

1226. Does not it open to the north?—To the north-east.

1227. It is a narrow channel?—It is a narrow channel, but I do not think she would run for Padstow if she were a large ship; a small ship would, if necessary.

1228. If a small ship was obliged to run from the force of a south-west gale, could she work into Padstow Harbour?—Yes, with the flood, and she would have smooth water in shore.

1229. Against the wind?—It is against wind, the harbour runs nearly north-east and south-west, I think you will find, if you will consult the chart before you.

1230. With reference to St. Tudwall's Roads you spoke of; if a vessel were embayed in Cardigan Bay with a south-west wind, could she reach it?—That depends upon how deep she was embayed; if she was so deeply embayed as to be to leeward of those dangerous reefs, known as Sarn Baddrick, and so on, then she could not reach the road; at present there is no shelter in a south-west gale of wind; if she was surprised by a north-west gale of wind, with a fair offing, she could run for St. Tudwall's Roads.

1231. Mr. Ewart.] Could St. Tudwall's Roads be made a protection from south-westerly gales at any moderate expense?—I think it could.

1232. It is very much frequented by vessels bound for Liverpool, caught by north-west gales?—It is.

1233. And you think with a moderate expense you could make it a harbour of refuge from south-westerly gales?—I think so; there are two outlying islands, or rocks, which may be connected.

1234. Mr. Augustus Smith.] It seems to be your opinion that, for small vessels, it would be better to improve the lesser harbours, that is to say, for vessels under 200 tons, than to limit the expenditure to large roadsteads, which you call harbours of asylum?—Yes, or sheltered roadsteads I would call them. I have no doubt of it; and exactly in proportion as you multiply the improvements of those harbours, so you will find these dots disappear from the wreck chart.

1235. You mentioned that the number of wrecks in that chart, of vessels under 200 tons, was 2,000, I think?—2,648.

1236. Out of what total number?—Out of a total number of 3,221.

1237. Have you analysed more minutely the circumstances under which those 2,600 and odd wrecks took place?—I have not examined them, but I have no doubt in my own mind how it occurs.

1238. Will you state under what circumstances you think it takes place?—I consider that the local trade is at present entirely carried on from the natural harbours, and in amount according to the trade of the place, as on the east coast, the Tyne, the Wear, the Tees, and others. Now, those harbours are all more or less bad bar harbours, and it is naturally the desire of those small vessels to keep pretty well in-shore, and run for their own homes, if possible. They have only a small amount of time in which they can avail themselves of the entrance into those harbours. Hence a large number of them are collected together, and are surprised by many adventitious circumstances, on the east coast particularly, some by the light ships throwing their ballast overboard before they reach their ports; others by their aggregation foul each other off the harbour's mouth. That is the reason, I think, that the amount of shipwrecks is so great of small vessels there.

1239. But

1239. But you have not analysed those particular wrecks so as to be able to state whether they occur from collisions, or whether they occur from foundering, or from gales, or other circumstances?—No, I have not, but I have taken this analysis in conjunction with the wreck chart.

1240. Are you not aware that a large part of the wrecks which now take place, as portrayed in that chart, occur during fine weather, or nearly fine weather?—It is possible that that may be so; that is a fact, of course, that neither myself nor any other sailor can account for; why a ship really should be lost in fine weather, except from very exceptional accidents, I cannot understand.

1241. With reference to Padstow, are there any facilities for making it what you would call a harbour of asylum, not a harbour of refuge?—You may make it a harbour of asylum by inclosing any amount of area outside the entrance.

1242. Did you ever examine that particular locality with a view of carrying out such a breakwater?—Never with that particular view, but I was directed, of course, to turn my attention to the capabilities of every bay and every harbour for improvement.

1243. From what point, then, would you suggest throwing out such a breakwater at Padstow Harbour?—I should be very slow of suggesting at present throwing out any such breakwater at all.

1244. Did you examine Trevoze Head at all; and if so, would it afford a great facility for forming one of those large works?—I think not Trevoze Head.

1245. What would be the objection to Trevoze Head?—The objection is this, that at most of those salient points there is very deep water, and heavy seas running home to the harbours; which I think a very serious objection to all these great harbours.

1246. Is that felt to be an objection to the new harbour at Holyhead?—Yes, I think it is; and I always anticipated that objection when I reported upon Holyhead, which I did many years ago, and I believe that that may be found to be the case even at this time; it is very lately that we have heard of the staging being washed away; but at the same time I think it is a most important and useful roadstead at Holyhead; and, whatever the amount of the expense may be, and whatever the amount of the accidents that might happen, I think the Government is fully justified in carrying out that very important harbour.

1247. As you have examined this north coast of Cornwall, would there be greater difficulty, do you think, in the formation of a similar harbour to that of Holyhead; or rather, would there not be equal facility to form a similar harbour at Trevoze Head to that which is formed at Holyhead?—I think not.

1248. Are there any other points upon that coast which you could suggest, where you think a large harbour of the character of Holyhead could be formed?—I am decidedly of opinion that, if such a harbour is to be formed, you could not go to a better place than St. Ives.

1249. Are you acquainted with the locality of Towan Head?—Very well; I surveyed it.

1250. What would be the facilities, or the advantages or disadvantages, of that position?—The mere facilities of a small bay upon a very dangerous coast, and I do not think it would be advisable to carry out any very extensive works in that bay.

1251. Are you acquainted at all with the nature of the ground as anchoring ground, at Towan Head, or Trevoze Head, or Padstow?—The soundings vary considerably.

1252. I am speaking of the nature of the soil for anchoring, not the depth of water?—There is a large amount of clear ground.

1253. Would it be good holding ground?—I think so.

1254. As good as Padstow?—Yes; anywhere within the islands of Gulland and Newland; anywhere within those islands, ships frequently anchor now, with the wind off shore, to stop a tide, or for any other particular purpose; but I think I have carefully marked in the chart the nature of the ground.

1255. The greatest depth of water at Padstow in the harbour you would propose to form for small vessels would be, how much?—I think, at low water we should get sixteen feet at the town; I think we should get as much water at low water as we now have at the entrance, which is sixteen feet and more.

1256. You mentioned that in your opinion the weather there was not apt to

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be more foggy than in other parts of the coast?—Not more than at other places surrounded by high lands, and in the vicinity of large channels.

1257. Is there not a greater amount of thick weather and rainy weather in the west of England than in other parts?—Just where they are in the neighbourhood of large estuaries, of course there is a large amount of evaporation from the rivers, and therefore we may suppose that there would be fogs, but not more there than in any other part.

1258. You are not aware, then, of the fact that there is a greater amount of rain, which must imply a great amount of thick weather, westward of Bristol than to the east of Bristol?—No, I cannot say that that is a matter that ever struck me; it may be so; I think it is very possible.

1259. Sir *James Elphinstone*.] What material is there in St. Ives Bay for the purpose of works?—An abundance of material.

1260. Is it granite?—There is granite.

1261. Mr. *Philips*.] There has been one general question very much discussed in this Committee, which is, as to the expediency of establishing harbours of refuge upon salient points, or in lines of what is called embayment; have you any opinion upon the subject?—Yes, I have; I have a strong opinion upon that subject. I consider that a harbour of refuge is, in fact, a harbour which a ship will run or drive for, that can neither keep the sea nor avoid the shore; and for that reason I apprehend that the most efficient harbour of refuge would be seated in these deep bays, where the greatest amount of casualties would in all probability occur. If a ship is off a salient point, I do not mean to say there are not exceptions which would not operate otherwise, but if she is off a salient point of the Channel, I think we may reasonably conclude that either upon one tack or the other she generally may keep an offing; whereas, if she is embayed within the horns of a bay, then I say that her position becomes extremely imminent, if it is a lee shore; and exactly the more dangerous as she is the more deeply embayed.

1262. Would not coasting vessels principally require harbours of refuge in the lines of embayment, rather than vessels making a voyage of a more extended description, which would more naturally be benefited by a harbour upon a salient point; coasting vessels are apt to keep more on the shore?—Yes, for the objects of their trade.

1263. You said you were well acquainted with the coast from the Land's End to Holyhead?—Yes, I think I am; it is many years since I surveyed it, but I have a distinct recollection of every feature of the coast.

1264. From Milford to Holyhead, you gave your opinion that harbours of refuge were required?—Yes, I think that harbours of refuge are much required and the more they are multiplied the better; and I consider further that, between St. David's Head and Holyhead, there is no more dangerous part of the coast, and therefore there they must be necessary.

1265. Do you consider that Fishguard would be a situation where a harbour of refuge should be placed?—I do; because, although at present it is a roadstead in the prevailing winds, still, although the prevailing winds are south-west and bring in a heavy sea, they invariably, I may say, fly round to the north-west, and blow equally as hard. If the wind did thus chop round to the north-west, any ship finding herself in Fishguard Roads would be in a similar dangerous position to that which I have already submitted to the Committee would be the case in St. Ives Bay.

1266. You mentioned, I think, Cardigan, Aberdovey, and Carnarvon?—Yes.

1267. Do you think that the greatest amount of improvement would be derived from establishing one or two harbours of refuge on a large scale throughout the country by improving the existing harbours?—It is my opinion, that if it is to lessen the amount of casualties that now occur, the number of wrecks, it would be in the improvement of the existing harbours; because naturally large and expensive harbours must be far apart; they could not be multiplied to any very great extent. But, at the same time, so few large harbours have we or sheltered roadsteads, that I think it is a case of the greatest importance that the question should be very maturely considered as to the necessity of such. I think it is of very great consequence, but certainly if it is to mitigate these dangers then, I think, the improvement of our present harbours would have the best effect.

1268. Mr.

1268. Mr. *Baring*.] You intend that observation of yours to apply to the whole coast?—The whole coast.

1269. As to St. Ives, are you aware whether they are building a new pier there?—No; many years ago I think Captain Vetch, the Admiralty adviser and engineer, talked to me upon the subject, but I have never seen his plan, or any plan.

1270. You stated that the greater portion of the wrecks consisted of small vessels?—Yes, that I gather from the official return.

1271. Have you ever considered whether the greater number of lives are lost by the wrecks of small or of large vessels?—Of course, that is a statistical question; if 20 small vessels were lost with five men, and one vessel was lost with 100 men, then I suppose the amount of the loss of life would be equal.

1272. The proportion of the number of wrecks would be different from the number of lives?—But if I take this table I should think the number of lives lost would be of greater amount in the small vessels. I believe the number of accidents and casualties which have occurred amongst large vessels is really not so much from wrecks, but from the amount of collisions. Large vessels do not frequently run into harbours on slight occasions; but when they have adverse winds, as it strengthens, they are obliged to reduce their canvas, and then lay-to. Now, all these channels are very much frequented by steamers, and when a vessel is laying-to, it will be evident to every nautical mind at all events, that she is to a certain extent powerless in herself, and therefore more subject to vessels running into her, or collision with steamers; and I think many of those recorded accidents may be attributed to that.

1273. Are you acquainted with the Irish coast?—Not at all.

1274. Mr. *Kendall*.] I understand from what you have said, that taking the number of wrecks off the north coast of Cornwall, from Cape Cornwall to Hartland Point, they are generally belonging to a class of coasting vessels?—Yes, the local trade.

1275. You do not consider a harbour of refuge needed for large vessels, taking the wrecks that occur between Cape Cornwall and Hartland Point?—There are some that might, but I do not think that large vessels would require that refuge which small vessels would, because they have a large area of sea-room, which they would prefer to avail themselves of.

1276. You said just now, you would not get much deep water in Padstow, but you would get deep water enough for the class of vessels liable to be wrecked off that coast?—No doubt of it; I have no doubt in the world of that.

1277. Of the places between these two points, you only think of St. Ives and Padstow; of the two, which do you prefer?—I only think of a harbour of refuge for the local trade, at Padstow; but I think St. Ives is a very important point as a roadstead, but as a refuge for the distresses upon that coast I confine myself entirely to Padstow.

1278. For what extent do you mean by local trade?—Not foreign trade; home trade.

1279. Take a line again, from that part you surveyed by Cape Cornwall to Hartland Point, and take the dangerous wind, the north-westerly wind, from which wrecks occur; take a fair proportion; for what area would St. Ives be available, and for what area would Padstow be available; have you a diagram with you?—I have not one with me.

*(A diagram of the area between the coast of Devonshire and Cornwall was handed to the Witness).*

1280. Have you seen that diagram?—I have.

1281. Does it appear to you to be fairly drawn?—Decidedly; honestly drawn.

1282. Then, according to that diagram, how much of the area would you say was available for Padstow, and how much for St. Ives, for a vessel caught in the most dangerous part. I understand, with a north-west wind within that line?—I think there can be no doubt, with the north-west wind, that Padstow is the most available, because, if I found myself to the northward of Trevoze Head, or indeed to the northward of St. Ann's Head with a north-west wind, and from that anything to the westward a ship could not get to St. Ives.

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1283. Just

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1283. Just now you spoke of a guide embankment at Padstow?—Yes.

1284. From whence do you get the stone?—I consider that there would be an abundance of stone to be had on one side, from Stepper Point, which I should certainly propose being cut down, and on the opposite side either from Bray or Trebetherick or Ferry Points.

1285. Is the cutting down of Stepper Point part of the plan?—Yes.

1286. Did you suggest that many years ago?—I did.

1287. What is the object of cutting it down; is it in the way now?—The object of cutting it down is this: the dangerous wind, odd as it may appear, for entering Padstow is a fair wind from the north-west; and it is the worst wind; the moment ships get under Stepper Point, they are obliged to keep so close under the point at the entrance, that they lose the true wind, and become baffled, and not only lose the true wind, but they are really taken aback by eddy winds, which eddy winds blow through the gulleys in the upper part of the harbour, and rush down the channel upon them, and throw them all aback.

1288. I understand Padstow would have been much more of a harbour of refuge if this point had been taken away?—No, I would not say that, because I consider Stepper Point to be a very important protection for that harbour.

1289. I do not mean all taken away, but if it were lowered?—Decidedly; just to that amount by which a ship could command the true wind in entering, if it were lowered to the amount which I have explained upon this chart.

1290. In what class of vessel did you survey when you surveyed that coast?—Very small vessels, which one is obliged to get upon the coast, of 70 or 80 tons; one Government cutter I had.

1291. You said you were nearly wrecked once or twice; which did you consider your harbour of refuge in those cases, St. Ives, or Padstow, or where?—Decidedly, Padstow. I never ran for any harbour in stress of weather during the survey of that portion of the coast but Padstow or Lundy Island.

1292. There appears to be a little discrepancy; can you reconcile it. I see that in Captain Vetch's evidence, 886, he says, "Captain Sheringham has told me that on more than one occasion he found, that from want of a shelter there, he was obliged to run round the Land's End, and get into Mount's Bay?—I read that evidence; Captain Vetch must have been under a misapprehension of what I said; this is a conversation that must have taken place, I think, seven years ago, at least six or seven years ago; I never ran round the Land's End but upon one occasion, and that was in a steamer that was sent to me to examine a dangerous shoal off the Land's End. I was lying in St. Ives Bay, and the officer, a lieutenant in the navy, who commanded her, was a senior officer to myself, but as the vessel was put under my orders, I directed him to go to Padstow to coal; I saw that he was keeping much closer in-shore than was prudent, and I recommended him to haul up two points, which he neglected; however, a heavy gale of wind came on from the north; luckily, some time after I had left St. Ives, and we became so deeply embayed, that we could not fetch Trevoise Head, we were within half-a-mile of the land, I then, with great difficulty, tacked the ship under steam; the gale was so severe that the engine stopped; we got her round, however, upon the starboard tack, and there was nothing for it but to run round the Land's End. Now, this was the only time I ever ran round the Land's End while I was surveying that coast; I might have mentioned this case to Captain Vetch, and it is very likely that he might have thought that was only one of many cases, and I think it was very natural he would think so.

1293. You consider Padstow as your harbour of refuge in all cases?—Yes.

1294. Is there a violent race of tide or not in Padstow Harbour?—No; I think, generally speaking, the tide is of less velocity, considering the immense amount of back-water, than might be anticipated; when I measured the tide, which I did, and took very great pains about it, the greatest amount, the greatest velocity of the tide, which was at half-spring ebb, was two knots and a half. That fact I have registered, and that fact I believe to be correct. It is true that precisely as the sands of a harbour of this kind become uncovered, so the rapidity of the tides increase; but as they only uncover in Padstow Harbour, near about low water, the great impetuosity of the tide is also decreased, and therefore I do not think there is a great race; I should say not; perhaps I might put the greatest velocity of



of the tide in Padstow Harbour, under any circumstances, to be certainly under four knots, and that for a very short time.

1295. Had Admiral Beaufort anything to do with the survey of Padstow Harbour at all?—Sir Francis Beaufort was hydrographer at the time when I surveyed Padstow; it was under his orders I surveyed it.

1296. Had you any communication with him upon the subject at all?—Many times.

1297. Do you remember what his opinion was?—He was strongly prepossessed with the opinion that something should be done and must be done for Padstow; and I ought, in justice to the memory of that eminent man, say, and I have no hesitation in saying, that there is no opinion in England which could be more valuable, if equal, to Sir Francis Beaufort's opinions upon points of that kind; he was an accomplished surveyor; he was a good engineer; he was a man of the soundest judgment and maturest deliberation; and seldom gave an opinion where he was not pretty well certain of the facts. And I know that his opinion went to the full extent that, if ever a place demanded the attention of the country and its assistance for improvement, that place upon the coast was Padstow.

1298. Did he at all suggest as to how it should be done?—No, he did not; he directed me to examine the Doom Bar, to explore it. So impressed was he of the necessity of Padstow, that when I was directed to survey the west coast of Cornwall, he said, "You will turn, in the first instance, your attention to Padstow Harbour; I think it is a place of great importance; and I am very anxious that I should have all the data possible before me, to form an opinion as to what improvements can be carried on there."

1299. Has anything ever been done at Stepper Point?—Not that I am aware of.

1300. Would it be a very costly thing to do, or not?—I should say not. In the first place I think nothing is too costly to make a good harbour in such a position; but I am persuaded that 40,000*l.*, and I think considerably under that, would do almost everything that was necessary there; I am sure that under 40,000*l.* would do it; much less.

1301. *Sir Frederick Smith.*] Notwithstanding the smallness of the race of the tides of Padstow Harbour, are you still of opinion that by those guide-banks you would get double the depth of water?—Not by the guide-banks alone, but by the assistance of dredging; and I reason from this analogy, that where the scour has increased and is straight, which it is from Harbour Cove to the point, and steep to, there the depth has considerably increased, and cut out an excellent channel.

1302. Where would you propose to dredge?—I should propose removing the whole of the middle banks, and when I had got those banks pretty nearly upon a level with the ordinary depth of the channel of the harbour, then I should turn my attention to loosening the soil at the bottom generally, and allow the scouring power to do its work.

1303. You would require to keep up the dredging power for a considerable time, would you not?—It would entirely depend upon whether, when it was once clear, it would keep itself clear; as I think it would. However, so as far as experience goes, it is so in other places.

1304. Suppose you had a limited sum of money to devote to that part of the coast, which of the two, taking all circumstances into consideration, would you apply it to; St. Ives or Padstow?—Certainly Padstow.

1305. Could Bude Haven be made a harbour of refuge?—No greater fiction could be put before the public than the proposal made for the formation of the Victoria Harbour, some 15 years ago. I reported upon that.

1306. And have you had any occasion to change your opinion of it?—No.

1307. Looking at St. Ives' Harbour, would there be any difficulty in connecting Godrevy Isle with the shoal called the Stones, in St. Ives' Bay?—I think there is no difficulty in doing anything of the kind, particularly as we are now running out sea-walls, and a breakwater into 20 fathoms water in Alderney.

1308. That would not be very expensive you imagine?—I will not say that.

1309. The materials are upon the spot?—The materials are upon the spot; I think

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I think there would be an amount of expense, but I would not say that that amount of expense would not be very properly laid out for making so fine a sheltered roadstead, as St. Ives would then become, provided it was carried out on a very extensive and large scale.

1310. You have given rather a decided opinion that it is better to have harbours of refuge in the bights of bays rather than at salient points; would you not, by having them in the bights of the bay, tend to make vessels run rather to those points than to keep to sea?—I should say that it would not; but under any circumstances it would be difficult to legislate against the ignorance or imprudence of men that would do so. Those are difficulties, which I apprehend, it is impossible to meet; if people really will run for these harbours of refuge, which are only meant to be used in case of need, if they run needlessly for them, it is impossible, I think, to provide against such contingencies.

1311. Do you know a place called Porthdinllaen, upon the Welsh coast?—Yes.

1312. It was inspected some years ago by Sir James Gordon and Captain Beechey?—Yes.

1313. Before it was determined to form the harbour of Holyhead?—Yes.

1314. With a view to determine which place should be selected?—Yes.

1315. You have read their report, I presume?—Yes.

1316. Do you concur with them that Porthdinllaen is not so good as Holyhead?—Most certainly; I cannot concur with them; when their report is directly against my former report in favour of Porthdinllaen.

1317. You still remain of that opinion?—Yes, and much against Holyhead, which has been thrown over since. When they wanted to improve the late harbour of Holyhead, I contended that it was not improvable, and it was found not to be improvable, and the whole site of it has been given up, and they are constructing their harbour further round the point.

1318. Then you are still of opinion, I presume, that it would be well to make a harbour of Porthdinllaen?—Not so; my report was, that that was the best port for the construction of a harbour, if a larger class of vessels were required in communication and connexion with Ireland for the packets. I examined Holyhead, and the substance of my report, which I have here, was this, that if the same class of vessels for the packet service was to be maintained, then Holyhead should be retained. I thought it would answer every purpose. On the other hand, if a larger harbour was required to receive a larger class of vessels, I did not believe that Holyhead was susceptible of so great an improvement for that purpose, or would be so good, as Porthdinllaen.

1319. Mr. *Philips*.] I think you said that you bore up occasionally for Lundy Island, did you not?—Yes.

1320. Suppose that in a violent south-west gale you missed Lundy Island, where would you run to?—The Bristol Channel.

1321. What part of the Bristol Channel?—With a south-west wind in the Bristol Channel of course it would be on the south side, and you would find shelter anywhere in a south-west wind, because it is sheltered entirely.

1322. Suppose a north-west gale to arise, where would you run for?—Then I must either run for Padstow, as I certainly should in a small vessel, and which I always did, or I must run round the Land's End; but certainly Padstow, if I could get in there, I should have no hesitation in running for.

1323. Mr. *A. Smith*.] One question as to the roadstead as it is now at Lundy: what is the nature of that shelter?—It is an open roadstead, but it is deep water, and you may have very good shelter with the light-house bearing west; very good shelter.

1324. What winds is it a shelter from?—It would shelter you with the wind from the west, the west-north-west, and round to south-west.

1325. That is the heaviest wind that could be met with?—Yes.

1326. That would act then as a shelter, as an anchorage, for the whole upper part of the Bristol Channel?—It would, for vessels beating down; I mean to say, as I have already observed, that a south-west gale frequently changes into a north-west gale, and a ship caught under Lundy in a north-west gale would not be in a very good position.

1327. I thought you said it would be sheltered?—I meant to say from winds west-north-west to south-west.

Mr. *Thomas Roundell Forward*, called in ; and Examined.

1328. *Chairman.*] WHAT are you ?—The commander of the “*Sylvia*” cruiser.  
 1329. Where do you ply ?—As tender to Her Majesty’s ship “*Russell*.”  
 1330. Are you on the coast-guard service ?—Yes.  
 1331. Are you in the habit of sailing in the Bristol Channel ?—Very much so.  
 1332. Do you know the whole of the coast from Bristol down to the Land’s End ?—I do.  
 1333. How long have you been in that service ?—I have been 31 years in the service.  
 1334. How long have you been in the service upon that coast ?—About 11 years.  
 1335. And therefore you have had opportunities of witnessing every description of weather at all times of the year ?—I have.  
 1336. Will you inform the Committee what part of the coast you have found most exposed to danger in gales ?—Between Cape Cornwall and Trevoſe Head.  
 1337. And between these two points what is the point of land that you consider the best adapted to afford shelter in case of danger ?—Under St. Ives Head in St. Ives Bay.  
 1338. Do you know Padstow Bay ?—I do, well.  
 1339. Do you frequently run into Padstow ?—No, I have been there several times, but I dislike it because it is unsafe.  
 1340. Why is it unsafe ?—The anchorage is bad ; there is nothing but sand.  
 1341. Is the anchorage better at St. Ives ?—There cannot be better anchorage than there is in St. Ives Bay ; it is blue clay, and the very best holding ground.  
 1342. The ground at Padstow is not good holding ground ?—It is not good.  
 1343. What gales are the most dangerous upon that coast ?—North-west and north-north-west are the most dangerous gales upon that coast.  
 1344. The south-west is the most prevalent gale, is it not ?—Yes, but then it blows from the shore ; a south-west gale makes rather a smooth water, but the wind suddenly shifting, with what sailors term a wet sky, makes it dangerous.  
 1345. Do not you rather mean that it is a south-east gale which blows from the shore ; a south-west gale blows direct along shore ?—No ; west-south-west blows direct along shore. In a south-west wind in St. Ives Bay, or in New Quay Bay, you will have very good shelter.  
 1346. For vessels trading to Bristol, or even up to Gloucester, taking the whole of the trade of that part of the coast, what are the points of land all the way down the Bristol Channel which you consider most exposed to danger ; do you consider anything in the Bristol Channel exposed to much danger ?—Yes ; there is very great danger above Lundy Island.  
 1347. Do considerable losses take place in that part ?—Considerable losses.  
 1348. Taking the Bristol Channel all the way down, including the part of the coast from the Land’s End up to Hartland Point, if a harbour of refuge were to be made in any part of that coast for the trade of that part of the country, which is the point you would consider the most useful ?—St. Ives Head, St. Ives Bay. That is the best adapted, I consider, of any part of the Bristol Channel.  
 1349. That is not in the Bristol Channel ?—No ; it is upon the north of the Cornwall coast.  
 1350. You mean as applicable to the trade of Bristol ?—Yes.  
 1351. With respect to vessels trading up and down the Channel ; from Bristol, or going foreign, or coasting, the point of the coast most useful for them to run to would be St. Ives Head ?—Under St. Ives Head, in St. Ives Bay.  
 1352. That affords pretty good shelter now, does it not ?—From a wind west-north-west to east you can have good shelter in St. Ives Bay.  
 1353. Do you consider that St. Ives Bay is capable of much improvement ?—Very much, and could be made as safe a harbour as any in Great Britain, provided there was a breakwater thrown off from St. Ives Head.  
 1354. What gale is it now most applicable for ?—The wind from north-north-west to north-north-east is the worst gale that blows in St. Ives Bay.  
 1355. The most dangerous gale upon that coast is a north-west gale, is it not ?—No ; north-north-west, and from that to north to north-north-east.  
 1356. Is St. Ives Bay useful for that wind ?—No.

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1357. As it is at present, would it afford shelter in that gale?—No, you cannot get any shelter from a wind to the northward of west-north-west; if there was a breakwater extending off about a mile and a half or about a mile and three-quarters from St. Ives Head you could have shelter from any wind.

1358. Admiral *Duncombe*.] The chart shows an amazing number of wrecks in the upper part of the Bristol Channel; can you state to what those wrecks are attributable?—Yes; in consequence of having no safe harbour to run to.

1359. Having no safe harbour, you mean on the coast of Cornwall, they run to the Bristol Channel, and there are lost?—They are lost by going up channel in foggy, thick weather; a haze prevails there, more especially where there are islands.

1360. Up the Bristol Channel where the wrecks have occurred, excepting the fogs, would the protection be good and the holding ground good?—Very good in many places.

1361. As you have been so long upon the coast it must have happened to you yourself frequently to have been caught in those gales of wind; where did you generally run to yourself?—Twice, and perhaps more than that, I have run for the Mumbles, in Swansea Bay.

1362. With what wind was that?—With the wind north-west.

1363. Have you taken refuge both in St. Ives Bay, and also in Padstow?—Only twice in Padstow that I can remember I have taken refuge; that is, in Harbour Cove.

1364. Have you found any difficulty in getting into Padstow Harbour when you have tried it?—Very great difficulty.

1365. From the extreme narrowness of the place, or why?—It is so very narrow from the main land to the Dum Bar Sand, not more than half a cable's length, and the winds are so very baffling as well.

1366. They fail, then, in going in?—Yes, if you touch the sand the ship is lost evidently; in nine cases out of ten.

1367. Is it your opinion, looking at the traffic on that part of the coast, that St. Ives Bay would be the best spot to select for additional refuge?—It is; speaking conscientiously, I believe that, in case a breakwater had been built at St. Ives, the vessels that were lost last winter at the Trevoze Head would have been saved. The vessels that were lost in St. Ives ran, thinking to get water into the pier, but finding there was too little water, they were lost; those vessels would have been saved if there had been a breakwater.

1368. How often have you taken refuge in St. Ives Bay yourself?—I think I may say 500 or 600 times.

1369. As the wind veered to the northward it became unsafe?—Yes.

1370. And your opinion is, that if a breakwater were run out from St. Ives Head, it would make a good harbour of refuge?—It would, in my opinion.

1371. Far preferable to anything that could be done at Padstow?—Far preferable.

1372. Lord *John Hay*.] Supposing that the wind was from the west-north-west or west, and that you were not able to fetch St. Ives, and it was necessary to go into some harbour of refuge, where would you go to then?—Up Channel.

1373. Under those circumstances, St. Ives would be of no use whatever, of course. Is there any harbour which you could run to with perfect safety under such circumstances?—There is no harbour.

1374. Therefore it is quite possible, in your opinion, that a great number of vessels may be caught in such a position that St. Ives would not be available, and they would have no harbour to run to in the Bristol Channel?—No harbour.

1375. Is there no place that you could indicate where a harbour of refuge might be constructed with advantage to the trade of the Bristol Channel besides St. Ives, to meet the case which I have described?—Do you mean above Hartland or below Hartland?

1376. I mean to meet the case of a vessel that found herself in a position in which she could not fetch St. Ives?—The next would be round Towan Head or in New Quay Bay; there is already a very good pier built there; vessels have run for that many years back, and been saved; that is near Padstow, about seven miles from Trevoze Head.

1377. I will

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1377. I will suppose that a vessel could not fetch that place?—If she cannot fetch there, she could go up Channel.

1378. But in the Bristol Channel, nearer the head of it, perhaps upon the coast of Wales, is there any harbour that vessels can run to with perfect safety?—Swansea at tide time, that is a tidal harbour.

1379. Is there no harbour existing on that part of the coast at the present time to which you could run under such circumstances with perfect safety?—There is no harbour.

1380. Will you point out what place in your opinion would be the best place to make a harbour to meet such a case as that?—The Mumble Roads, that is, Swansea Bay.

1381. Do you think that a harbour in that place would meet the case of all those vessels which might be in a position in which they could not reach St. Ives?—I do.

1382. Mr. *Hassard*.] There is a large foreign trade at Bristol, is there not?—There is.

1383. With respect to foreign vessels, when going outward-bound, if caught in a south-west gale, is it the habit to run under St. Ives Head for shelter?—I have seen many outward-bound vessels lying there for shelter in a south-west gale.

1384. Do you think that some of the losses which occur higher up the Bristol Channel arise from those vessels being obliged to run for it?—I do.

1385. Do you think if a pier were run out from St. Ives Head, those vessels would be saved?—I think they would.

1386. What sort of shelter is there under the Mumbles Head at present?—Very little.

1387. From what wind does the Mumbles Head afford shelter?—From the wind west by south, with a wind to the southward of that you lie open.

1388. Is there any facility for throwing a breakwater out from there?—Yes, I think there is.

1389. Mr. *Augustus Smith*.] A question was put to you just now with respect to a vessel that could not get to St. Ives; how far would Lundy serve as a place of shelter?—That is a very wild place.

1390. How is it as an anchorage for large vessels?—With the wind west-south-west, and from that to west-north-west, there is shelter.

1391. Would there be any facility of throwing out piers or a breakwater there, so as to make it available?—No, I think not.

1392. Taking the north coast of Cornwall, you mentioned New Quay; you think there would be facility under Towan Head there?—I do.

1393. Is the anchorage good there?—Very good.

1394. Are there any out-lying dangers or rocks of any kind?—There is one small rock.

1395. Would that be covered by any breakwater that would be thrown out?—It is not in the best anchorage; the rock I speak of is close round Towan Head.

1396. Are you acquainted with the shore about St. Ann's Head?—Very well.

1397. Are there any facilities about St. Ann's Head for the formation of a harbour of refuge?—None whatever.

1398. There is some little harbour there now, is there not?—Yes; but a very bad one.

1399. What is your opinion of Trevoze Head?—I do not think you could run off a breakwater there with any safety.

1400. Do you think a breakwater could be sent down from Stepper Point outside Padstow?—I think not.

1401. You think between Stepper Point and Trevoze Head would not be a favourable position?—I think not.

1402. Do not vessels bring up there sometimes now?—'I'o save life; no more than that. Last winter, two ran in there; crew of one was saved, and the other was drowned.

1403. Vessels only run in there in cases of extreme necessity?—That is all.

1404. Is there any other place besides the Mumbles that you can suggest, upon the south coast of Wales, between Milford and Cardiff?—Tenby Roads, inside Caldy Island.

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1405. Which position do you think has the greatest natural advantage, inside Caldy Island or the Mumbles?—The Mumbles.

1406. Why do you give the preference to the Mumbles?—The vessels fear going near Caldy, because the force of the sea and tide sets them into Caermarthen Bay; there is no opportunity of getting out then. If they shape their course up to Lundy Island there are two lights which they are very likely to sight, and then from there they shape their course for the Mumble Head.

1407. Have you known many instances of vessels having come from the Smalls to make the Land's End, and having been caught by the set of the tide in the Bristol Channel?—Yes; the set of the north-west tide has driven them into the Bristol Channel.

1408. Is the set of the tide in the in-draught into the Bristol Channel or the outset the strongest?—The inset.

1409. Have you known instances of vessels which have started from Ireland intending to go south-west, which have, notwithstanding the wind has been to the east, still got up into the Bristol Channel?—Yes.

1410. Sir *James Elphinstone*.] Supposing that vessels cannot reach St. Ives, can they make Barnstaple Bay instead of running to the Mumbles; when the wind is west-north-west, is there any shelter in Clovelly Roads?—Very poor.

1411. I suppose a breakwater might be constructed there?—Yes.

1412. But with St. Ives in view, you would not recommend it, I suppose?—St. Ives I consider the best.

1413. Mr. *Gurney*.] Do your professional duties take you into the Bristol Channel as much as they do on the Cornish coast; have you equal experience of the Bristol Channel as of the Cornish coast?—No, not equal experience; I have not been so much up above Hartland.

1414. But at the same time you have been frequently above there?—I have.

1415. And you consider there is great danger above Hartland Point?—I do; very great danger.

1416. And when you go south of it?—I also consider east-south-east of it to be dangerous.

1417. Speaking generally, what do you consider the character of the coast between Hartland Point and St. Ives; would you speak of it generally as a dangerous coast?—Very dangerous.

1418. What is about the distance between those two points?—About 60 miles.

1419. Mr. *Kendall*.] What was the object of your coasting off there; to prevent smuggling I suppose?—To protect the revenue.

1420. What is your general run; to what extent do you go; to what point do you go?—I have been cruising in the Bristol Channel for a fortnight or three weeks; from the Lizard round to Lundy Island.

1421. You say you run into St. Ives frequently?—Very frequently.

1422. And I suppose you are much more frequently near St. Ives than you are near Padstow; it is in your run?—Yes; I avoid going to Padstow as much as possible during the winter.

1423. Take the distance from Cape Cornwall to Hartland Point, and suppose that 20 vessels are fairly scattered between those two points, and are caught in a storm, how many of those vessels could fetch St. Ives?—The whole of them, if the wind was north.

1424. I am taking them to be fairly scattered, all the way up towards Hartland Point, with the most dangerous wind, the north-north-west wind; supposing the vessels were scattered all up between those two points and were caught in a north-north-west wind, how many could fetch St. Ives?—They could all fetch St. Ives with a north-north-west wind if they were a sufficient distance off.

1425. Which is the most dangerous wind there?—From north-west to north and north-north-east.

1426. With a north-west wind?—With a north-west wind of course they could not fetch St. Ives; if they were far to the east-north-east it is impossible they could fetch it.

1427. Then St. Ives would not meet all the requirements of that coast?—Decidedly not.

1428. But you do not approve of Padstow?—No.
1429. Have you been at Padstow a great deal?—I have.
1430. What is the cause of the baffling winds?—The high hill.
1431. If that high hill were removed, in a measure, would that remedy the evil do you think?—Perhaps it might a little. I do not know.
1432. Now, as regards the anchorage, if once you fetch Padstow, would you require the same anchorage there as you do at St. Ives; is not the shelter very great when you get in there?—No, you are not safe when you get in there.
1433. Then, in fact, if you run there you are not safe; you require better anchorage than you have now?—Yes. I will tell you why. Should the wind suddenly shift to east-south-east, or south-east, the anchorage is bad, and there is so very great a drift from that direction that the vessel would drive on shore.
1434. *Mr. Philips.*] Would vessels trading from the northern ports, Liverpool and ports in that direction, if they were caught in a westerly gale, derive any advantage from St. Ives Harbour?—Very great. One put in there the other day, a homeward-bound Frenchman, and if it had not been for St. Ives, even as it is, she would have been lost in all probability.
1435. Where was she bound from?—From abroad, laden with sugar. She was caught in the direction between the Smalls and the Land's End; in the same direction as Liverpool.
1436. My question was, whether vessels trading from the northern ports of Liverpool and so on, if caught in a western gale, could run for St. Ives, going up the Bristol Channel?—They could, provided there was a breakwater.
1437. *Mr. Kendall.*] New Quay Harbour has been surveyed, has it not, with a view to running out a breakwater?—I think it has.
1438. Do you know what the estimate was at all?—I do not.
1439. It would be something very enormous, would not it?—Yes, I think it would.
1440. Would not making a breakwater at St. Ives be very expensive?—There is a great hill there; it is solid rock.
1441. *Lord A. Vane Tempest.*] You gave the Committee to understand that in your opinion the expenditure of money on Padstow would not make it an advisable harbour?—Not at all.
1442. You think the expenditure of money would be thrown away upon Padstow Harbour?—I do.
1443. And you think that the requirements of the coast would be met by the improvement of the existing harbour of St. Ives, and also the improvement of the harbour lying under the Mumbles?—Yes.
1444. *Lord John Hay.*] You have been a very long time in the Bristol Channel, and have probably seen vessels come in disabled?—I have.
1445. Have you ever seen this wreck-chart?—No.
1446. I wish to know whether a large amount of these wrecks which appear marked upon the chart close to Bristol, are of vessels which have been towed in, probably found disabled somewhere else, or have just run in and have got on shore, perhaps?—In nine cases out of ten they are forced up by the gales.

*Mr. John Dyer Bryant*, called in; and Examined.

1447. *Chairman.*] WHAT are you?—Receiver of Wreck for the port and district of Padstow. *Mr. J. D. Bryant.*
1448. For the Admiralty?—I am receiver of the Droits of Admiralty, and also receiver of wreck under the Board of Trade.
1449. Do you know that coast very well?—I know it pretty well.
1450. Have you any nautical knowledge?—I have been up and down the coast, and been in and out most of the creeks, but I do not profess to be a sailor.
1451. In the exercise of your duties in the office which you hold, has your attention been called to most of the harbours, and the wrecks in that locality?—Yes.
1452. What are you besides the receiver of wreck?—I am a commissioner for the port of Padstow, and a member of the managing committee of the Padstow Harbour Association for the Preservation of Life and Property from Shipwreck.
1453. Are you in any trade at all?—I am a merchant.
1454. A merchant in Padstow?—Yes.

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1455. What points of the coast have been suggested for harbours of refuge in that immediate locality, or in the whole coast of Cornwall?—The most westerly is St. Ives; then the next easterly is Towan Head; the next easterly again is Trevoze Head, Polverton Bay east of Trevoze Head; then Padstow Harbour, and then the bay at the back of Pentire Point, called the Sound of the Moulds.

1456. What points do you consider, from the information which you possess of the locality, and from the observations which you have heard made, are the most eligible for a harbour of refuge?—I think the port of Padstow.

1457. Do you know St. Ives?—I know St. Ives.

1458. Will you state why you give the preference to Padstow?—Because Padstow commands a much larger space of the coast than St. Ives in the most dangerous wind, which is the north-west.

1459. Is Padstow more easily taken in a north-west wind than St. Ives?—Much more so.

1460. Suppose there were a breakwater made at St. Ives, how would it be then?—A ship would not fetch St. Ives more than she would now. What I mean is, that if you had a certain number of vessels up and down the coast, more of those vessels would reach Padstow with a north-west gale than would get to St. Ives.

1461. What is the general size of the vessels upon that coast?—Under 200 tons.

1462. Then it is chiefly a coasting trade, is it not?—Chiefly a coasting trade.

1463. Vessels going foreign keep clear out to sea and do not generally come near the coast much, do they?—Not nearly so much as they used to do; outward-bound vessels coming from the Bristol Channel or the St. George's Channel, keep a fair offing, and for the homeward bound we have a very good lighthouse on Trevoze Head, which they can see some 20 miles, and that gives them a sufficient offing to go up the Bristol Channel without being embayed upon the coast of Cornwall.

1464. Then the establishment of that lighthouse enables the homeward-bound vessels to keep better out to sea than they did formerly?—Yes.

1465. And therefore, so far as regards the foreign trade, a harbour of refuge upon that part of the coast of Cornwall is not so much required as it was at one time?—Not nearly so much.

1466. Have you frequently a great collection of coasting vessels in your neighbourhood?—Yes, a great number.

1467. Wind-bound?—Yes; Padstow is a capital port for wind-bound ships with the wind to the north; very frequently we have large fleets come in with the wind to the north.

1468. Is there any difficulty in taking that harbour?—Not with the wind to the north; it is a fair wind in.

1469. With the wind to the south?—With the wind to the south it is a fair wind up Channel, and then they would not want to come in.

1470. What sort of ground is it when they are in?—It is a very capital place for ships to lie; I see by Captain Sheringham's chart, that the least depth of water at the entrance in the Channel is 17 feet at low water spring tides.

1471. How wide is it?—The Channel there is about 50 fathoms wide, that is, 300 feet, and Captain Washington, whose report on the harbour I have here, suggested that by an expenditure of 500 £. you could make the entrance of Padstow at all times at low water spring tides, 20 feet of water.

1472. Is the ground good holding ground when the vessels are in?—Capital.

1473. What is it, sand or clay?—Clay.

1474. Would it be correct to say that the entrance is only the length of a cable?—No, that is at dead low water; I am speaking of spring tides; but at high water the channel is some 200 fathoms.

1475. And there is no difficulty in entering, from the width?—No difficulty, except with the wind to the north-west.

1476. But that is the most dangerous gale there, is it not?—That is the most dangerous wind on that coast.

1477. Then your greatest difficulty is when you have got the most dangerous gale?—Yes, it is now.

1478. Could that be removed?—Yes.

1479. How could that difficulty be removed?—I have a model here, which will



will explain the manner in which it could be done quicker than I can, if you will allow me to exhibit it.—(*The model was placed before the Committee.*)

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1480. What is that model?—It is a model of Stepper Point, and of the entrance to the harbour of Padstow. 18 March 1858.

1481. The harbour is round there, is it?—This is the entrance to the harbour of Padstow (*pointing out the same.*)

1482. What you propose is, to remove a part of that point?—Yes; with a gale from the north-west, taking Padstow, a vessel gets a fair wind about as far as that; and when she gets as far as the other ship, she gets a fair wind again; the only difficulty is in passing from there to there (*describing the same.*)

1483. How is that difficulty to be removed?—Some years ago, the Padstow Harbour Association, which is a voluntary association, cut down a part of the point here for the assistance of vessels, which this represents (*taking a piece off the model*); the cutting down of that small piece gives vessels a fair wind about 50 fathoms further into the harbour than they had before, so that when a vessel went in formerly, she was becalmed just here; she is now able to go in so far.

1484. In fact, the removal of that point enables them to come under the influence of the wind that blows over it?—Yes; a vessel can get into this capstan-house by removal of that piece; that was done in 1848.

1485. Do you suggest that the high land should be lowered further in?—Yes, the plan would be, as suggested, to uncap the hill just so much as that (*taking a piece off the model*).

1486. Would that be a very expensive operation?—No; the mere removal of that block of stone would cost something like 15,000 £. at the furthest.

1487. When that was done would you have a fair wind all the way in?—Yes; and at all times of the tide.

1488. The difficulty of making the harbour in a north-west gale in that case would be removed?—Precisely.

1489. Is that the chief difficulty which at present exists in Padstow Harbour, as a harbour of refuge?—Yes.

1490. The difficulty of making it in a north-west gale, which is the most dangerous upon the coast?—Yes.

1491. It is, in point of fact, chiefly in a north-west gale that vessels frequenting that coast require a refuge?—Chiefly.

1492. Is the depth of water at present sufficient for the majority of vessels that frequent the coast after they are in?—Yes; I see by Captain Sheringham's chart that we have 17 feet of water here now, and if we followed Captain Washington's suggestion of spending 500£. in dredging, we should have 20 feet of water at low-water spring tides. Now at low-water spring tides in the harbour there is half a mile long of 300 feet wide, and from 18 to 27 feet deep, and there is another anchorage of a third of a mile long, 300 feet wide, and from 9 to 14 feet deep, and opposite and abreast of Padstow Pier, which is dry at low water, there is accommodation for 200 or 300 sail of coasters.

1493. Taking the range of coast which is frequented by the coasting vessels to which you have alluded, what portion of the range of coast would Padstow be applicable to, as compared with St. Ives?—In a gale of wind from the north-west, taking the blue on the diagram, any vessel in the blue space would not fetch St. Ives.

1494. What part of it would fetch St. Ives?—If she was in the small red corner she must go to St. Ives; and if she is in the yellow, she might go either to St. Ives or to Padstow; you might divide those between the two ports.

1495. Then the yellow and the red would be equally applicable to St. Ives, and Padstow would be applicable to the yellow and blue; the part marked red would be applicable to St. Ives only, and the part marked blue would be applicable to Padstow only?—Precisely.

1496. Then, in point of fact, the portion for which Padstow would be applicable, may be said to be as about ten to one to what St. Ives would be applicable to, taken solely according to that plan?—Twelve to one, I think, is about the proportion.

1497. You have been in the room, and heard a witness state that the holding ground in Padstow is very bad; that it is loose sand. Is that in conformity with your knowledge of the fact?—No.

1498. Have you ever heard a complaint of the holding ground?—No; I never heard



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1499. You say it is clay, and not sand?—It is clay, and not sand.

1500. Can you inform the Committee, at all, at what cost the improvements of Padstow could be made, so as to render it applicable for the use of all those small vessels to which you have alluded?—I calculate that 30,000 *l.* would give you a harbour accessible at all times, with 20 feet of water at the entrance.

1501. And that, for an expenditure of 30,000 *l.*, a harbour of refuge would be furnished on that part of the coast, applicable in the proportion of 12 to 1, as compared with St. Ives?—Yes.

1502. Do you think that if a harbour of refuge were made, such as you describe, at Padstow, that would be sufficient for the general necessities of the Bristol Channel, in addition to St. Ives, as it now exists?—I think so.

1503. **Admiral Duncombe.]** That answer refers to the coasting trade, I suppose?—To any vessels not drawing more than 20 feet of water.

1504. I think you said that the foreign trade seldom comes down that part of the coast?—Yes; and there are many reasons why we have not been troubled with large ships upon that coast so much as we formerly were; Trevose light gives them warning in running into the channel at night.

1505. The expenditure of 30,000 *l.*, as you describe, would, in your estimation, make Padstow a sufficiently good harbour of refuge for the coasting trade?—Yes; and for all ships not drawing more than 20 feet.

1506. And besides that, an expenditure, I understand, is to be employed in dredging the channel?—Captain Washington says that 500*l.* would just dredge that little bit of entrance; it is a small space, not more than 20 fathoms long.

1507. But there are sandbanks higher up the harbour, it appears?—Padstow Harbour is six miles long.

1508. How would you propose to get rid of them?—As I described just now.

1509. There are sandbanks, are there not, in the harbour?—Yes.

1510. Do you propose getting rid of them by dredging?—No; I think if you confine the scour of the tide by fairleaders for the tide, the sand would go out of the harbour of itself.

1511. As shown by Captain Sheringham's plan, you think it would keep the channel sufficiently clear?—Yes; I think if the fairleaders, as shown upon Captain Sheringham's plan, were adopted, it would make 20 feet in the entrance, gradually shoaling to perhaps 14 or 15 feet two miles up.

1512. You do not consider that the dredging would be a continuous work, but would only be necessary in the first instance?—That is all; you see that, according to Captain Sheringham's chart now, you have a long space with the present scour as it stands, kept at 24 to 27 feet in dead low-water spring tides.

1513. **Lord John Hay.]** What is the width of that part which is kept at the depth which you have described; 24 feet, I think you said?—It is about from 200 to 300 feet.

1514. Is that a sufficient amount of width, or nearly sufficient, to make it of any practical use to a considerable trade, taking advantage of a port of that sort; would they be able to anchor there; would they have room to swing?—They would be obliged to be tended by warps; but I think it is a fair presumption that if the fairleaders, as proposed by Captain Sheringham, were adopted, you would have a much wider channel.

1515. Do you ground that presumption on any practical knowledge of your own, or from having heard it from any one who is likely to understand the subject?—I ground it upon practical knowledge of my own, and the result of the sea walls which have been built, and from a knowledge of Padstow.

1516. In what part of the harbour?—Just above the town of Padstow, (*see* Captain Sheringham's Chart), the channel there is now about 500 feet wide; there was nothing but a sandbank before those sea walls were built. The action of the tide on that wall cleared off a bar of sand 500 feet wide.

1517. You think there is sufficient evidence already of the certainty of this succeeding, to make it a very proper way of spending the money of the country to make a harbour there?—I think so.

1518. Are you so confident of it that you would be inclined to enter into the speculation yourself upon the same data; do you think it is so certain as to be quite

quite positive that it would succeed?—I have no doubt upon the subject whatever. Mr. J. D. Bryant.

1519. Lord *A. V. Tempest*.] You have quoted Captain Washington's views with regard to Padstow, have you not?—Yes. 18 March 1858.

1520. Have you read the evidence which Captain Washington gave upon this part of the coast to this Committee, when sitting last Session?—I have read it in this Report.

1521. Do you recollect that at Question 235, Captain Washington stated that Padstow would be a very difficult place to deal with; and that also at Question 338, he stated, "Padstow is a very difficult place to deal with, and has a violent race of the tide"?—I think Captain Washington has been misinformed, or he misunderstands the race of the tide there. In his Report, at page 250, he talks of a race of tide six knots an hour.

1522. My question referred to Captain Washington's opinion that there was a race of tide at Padstow, which would render it a very ineligible place for a harbour?—Yes, he says so; and he gives the rate in his report.

1523. Am I right in stating, that the tendency of Captain Washington's evidence was very adverse to Padstow as a harbour of refuge, and very much in favour of St. Ives?—Captain Washington says, that doubtless it might be much improved, in his answer to Question 235.

1524. But am I not right in stating that the tendency of Captain Washington's evidence was in favour of St. Ives, and adverse to Padstow?—Rather so.

1525. Was not Captain Sullivan's evidence somewhat of the same tendency?—There is one thing I remark on the part of all the gentlemen who have given evidence in this report, which is, that they do not deal with the north-west winds, which are the most dangerous upon this coast; they talk of the north wind, which is a fair wind into Padstow.

1526. But, was not the tendency, both of Captain Sullivan's evidence and Captain Washington's, in favour of St. Ives, and adverse to Padstow?—Yes.

1527. Do you repeat your statement, that the holding gound of Padstow Harbour is good?—Yes.

1528. Firm holding ground?—Yes.

1529. Mr. *Hassard*.] You stated that in a south-west wind, a vessel would not want a harbour to run for; that she would run up channel?—Yes, if the vessel was bound up channel, it would be a fair wind up.

1530. But suppose the vessel was outward bound, and was headed by a south-west wind, you were asked the question whether she could get into Padstow, and I understood you to say, that a vessel would not require a harbour if she could run up channel; is that your opinion?—If she were bound up channel, of course it would be a fair wind for her; and if she were bound down channel she would not get to the north coast of Cornwall at all.

1531. Did you hear the last witness examined, Captain Forward?—I did.

1532. Did you hear him state that there were a number of outward-bound vessels often at anchor under St. Ives Head?—I think I did.

1533. Do you happen to know anything of whether that is likely to be the case or not?—No, I cannot speak of that.

1534. Is it not likely that he is correct in that respect, from his experience upon that coast?—Probably so.

1535. Suppose those vessels to be there, do you think those vessels would run up channel, could those vessels lie off Padstow?—They could come into Padstow if they felt inclined.

1536. How could they get in?—They could beat in.

1537. What width is the channel?—From 200 to 300 fathoms at high water.

1538. What is it at low water?—About 100 fathoms; they could wait for a tide, and they very often do so.

1539. Where could they wait for a tide?—In the bay.

1540. Is there good shelter there?—Very good shelter in the bay.

1541. Good holding ground?—Very good holding ground.

1542. What is the nature of the holding ground?—It is clay.

1543. Do you mean that a vessel could run up channel with that wind?—She could, without any particular danger.

1544. Where could she run besides up channel?—To King Road, with the wind south-west.

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1545. Is there any danger in running for King Road?—The extent of danger incidental to the navigation.

1546. Is there not a good deal of foul ground between Bridgwater and King Road?—I would not give an opinion upon that point; I know that vessels very often do run that way.

1547. You do not profess to give any nautical information, as I understand?—No.

1548. With regard to Padstow, you say that a north-west wind is a fair wind into it?—The north is a fair wind into it, and with that hill cut away the north-west would be too.

1549. Is there a heavy sea?—Yes, on the whole of that coast.

1550. Does the sea run home into that harbour with the north-west wind?—Yes, but it is not very heavy.

1551. What is the breadth of the anchorage which exists there at present?—At low water from 200 to 300 feet, at dead low water; at high water it is a quarter of a mile or half a mile wide.

1552. Supposing a vessel of a large size ran in there, how is she to bring up with only 300 feet?—If she ran in at high water she would have plenty of room to swing; if she ran in at ebb she would bring up and ride at ebb.

1553. How is she to bring up?—She would drop her anchor.

1554. Suppose she is running in with a fair wind?—Then she can slacken sail before she drops her anchor.

1555. Suppose she ran in at quarter flood, how could she bring up?—Then she must drop and swing.

1556. Would she have room to swing?—Yes, on the best anchorage ground she would.

1557. Is that far off the harbour?—About a third of a mile within the entrance.

1558. Then, where you say that the breadth is 300 feet, to what part of the harbour do you refer?—I refer to the channel at low water.

1559. Do you mean the outer end of the channel?—No, the whole length of the channel.

1560. What breadth would there be at quarter flood?—Perhaps 500 feet.

1561. Do you think a vessel of 500 tons running in there at quarter tide would have room to swing?—Yes; a vessel drawing 15 feet would have plenty of room.

1562. Have you examined the substratum of the harbour which you say is mud and clay?—No, I have not, but I have heard it stated by the masters of vessels that it is mud and clay. I have lived there 20 years, and I never knew a vessel to drive from her anchor.

1563. Have any dredging operations been carried on there?—None.

1564. Then there has been no experiment tried as yet from which the nature of the ground is to be gathered?—No; whether Captain Washington made any experiment from which he made this report, I cannot say.

1565. Mr. Baring.] Are you a shipowner?—Yes.

1566. Then you, yourself, are interested in having the best place selected upon that coast for a harbour of refuge?—Yes.

1567. How many ships do you own?—Two.

1568. Are you in business at Padstow?—Yes.

1569. The improvement of Padstow Harbour I presume would bring more trade to the place?—No; I do not think it would bring much more trade; the expenditure by wind-bound ships would be the only thing.

1570. If more ships were brought in there in consequence of the improvement of the harbour, surely more trade would come there?—Yes; but I think that the improvement of the harbour as a harbour of refuge would not increase the local trade of the place; it would be merely the expenditure by the ships that are wind-bound.

1571. Mr. Macartney.] What is the principal trade at the harbour of Padstow, in and out?—The importation of coals and timber, and the exportation of corn and some minerals.

1572. Is that extensive?—Not very extensive.

1573. Mr. Kendal.] You assume the cost to be 15,000 £; how do you get at that cost?—By the measurement of the piece which is proposed to be removed at so much per fathom.

1574. Do

1574. Do you know anything of that sort of work being done in the neighbourhood?—I know of works where the same sort of excavation is now being done at that rate. Mr. J. D. Bryant.

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1575. That would amount to 15,000*l.*?—Yes.

1576. What do you do with the other 15,000*l.*?—It was proposed to remove the stuff from Stepper Point, and make an embankment across Harbour Cove; the cost of that must be calculated; it would cost altogether 18,000*l.* on the western side of the harbour, and then Captain Sheringham proposes a fair leader for the tide on the eastern side, which would probably take the remaining part of the money.

1577. You fancy that the estimate is as fairly near as engineers' estimates are in general; perhaps nearer?—I think so; works are being done near there at that cost now.

1578. What is the rock there?—Trap rock, schist, and slate.

1579. Are you aware from your experience to what proportion of the vessels in distress which you have seen off the coast the depth of water in Padstow Harbour would afford refuge?—Nineteen-twentieths of them at low water, and the other one-twentieth could come in at high water; I do not remember any vessel off the coast that could not take it at high water.

1580. If they came in, would they be subject to any toll?—The lower part of the harbour is not subject to toll. At the time of the passing of the Padstow Harbour Act the levying of tolls in the lower part of the harbour on wind-bound ships was opposed by the Bristol Chamber of Commerce, on the ground that it would one day be made a harbour of refuge, and they would like to have their ships free of toll; and so it was enacted. I have one further remark to make, if you will allow me. I wish to state that the casualties on the coast of Cornwall are very intermittent, if I may be allowed the expression. I see by the Wreck Chart that the casualties in my district for the six years ending 1856 have been 26. Now, in the year 1857, there were two total losses, and the crews drowned; four total losses and the crews saved; and seven casualties of other descriptions, making 13 for the year 1857.

Mr. Joseph Samson, called in; and Examined.

1581. *Chairman.*] WHAT are you?—A master mariner; a master of a ship. Mr. Joseph Samson.

1582. Do you reside in Bristol?—Yes.

1583. In what trade have you been mostly engaged?—On the foreign trade.

1584. Have you traded up and down the Bristol Channel in going on foreign voyages?—Yes, for 32 years, in command of ships from 230 to 950 tons.

1585. Has it been in the American trade that you have been chiefly engaged?—Yes; the whole time to different parts of the States.

1586. In going up and down the Bristol Channel, and including the part of St. George's Channel which you would sail through, what is the most dangerous part of the coast?—The general navigation of the Bristol Channel is dangerous throughout; all above Lundy Island.

1587. And lower down the coast?—Lower down we do not consider so dangerous; there is more sea room.

1588. When you get out of the Bristol Channel going on a foreign voyage, you keep a good offing from the land, I presume?—Yes; about mid-channel.

1589. Therefore, in going foreign, you have very little danger to encounter after you have got out of the Bristol Channel?—Not much after we get westward of Lundy.

1590. If you are going outward-bound, and have got a north-west wind, of course you proceed on your voyage?—Not with an outward-bound ship; that is where we are stopped at once, and need a harbour of refuge.

1591. Would not a north-west wind with an outward-bound ship be a fair wind?—Not out of the Bristol Channel.

1592. But after you have got to the north of the Bristol Channel?—No; we should want to steer west by north.

1593. Then, so far as regards the foreign trade from Bristol, your chief danger is in the Bristol Channel?—Quite so.

1594. What protection is there now in the shape of refuge in the event of your being caught in a gale in the Bristol Channel?—There is not much now; we are brought by pilots as far as Lundy Island; that is the limit of their pilotage, age,

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age, and the ship master is then left in charge of his ship himself to work his way in this difficult navigation and to box about in strong tides.

1595. Have you formed any opinion from your experience of the most desirable improvement that could be made in the Bristol Channel for the purpose of increasing its security?—I have.

1596. Will you state your opinion upon that point?—The formation of a harbour of refuge at Clovelly.

1597. That is in Barnstaple Bay?—Yes.

1598. You mean that a harbour of refuge should be made in Barnstaple Bay?—Yes; in the neighbourhood of Clovelly.

1599. What is the most dangerous wind that you have in the Bristol Channel?—Westerly winds; when bound out of the Channel, south-west to north-west are the most dangerous.

1600. Would Barnstaple Bay be available with those winds?—Quite so, when we were to the west of Lundy Island; we might run up between Lundy Island and Hartland Point, and with a harbour made in Clovelly ships could run in there with ease, and they would be under the lee of Hartland Point; they might anchor in Clovelly Roads.

1601. Do you think that a harbour of refuge made in Barnstaple Bay would answer all the purposes for which refuge is required within the Bristol Channel?—It is in the track of the Bristol Channel; the great body of the ships going out of the Bristol Channel generally pass between Lundy Island and Hartland Point; and they are frequently taken there with westerly winds.

1602. Has your attention been called to the other side of the coast; the Welsh side?—I have been about 130 odd times past Lundy, and know both sides.

1603. Is there any point there that you could recommend as being well adapted for refuge?—I should prefer by all means Clovelly; the Welsh coast is lined with sands, and we generally give it a wide berth.

1604. You say lined with sands; on what part principally?—From the Worm's Head up to Nash Point.

1605. Does your natural course up and down the Channel generally lie nearer to the Welsh coast, or to the English coast?—We generally prefer the English coast.

1606. You keep as near to the English shore as you can safely?—We do.

1607. Admiral *Duncombe*.] I understand, as a general thing, that vessels sailing out of the Bristol Channel pass between Lundy Island and Hartland Point?—Yes; but that depends upon the wind.

1608. After leaving Lundy Island, where you get rid of your pilot, whenever bad weather comes on, you think Barnstaple Bay would be a most eligible spot for affording protection?—I should prefer it to any other part of the Channel if a harbour of refuge were found there.

1609. In the event of the wind chopping round to north-north-west, is it equally protected from that wind?—If a harbour of refuge were formed there, it would be.

1610. You mean by throwing out a breakwater?—Yes; that is the only danger of the bay now. The bay is well sheltered from the south-west wind, and a vessel makes it with safety; but if the wind flies round to the north-north-west, then she becomes embayed.

1611. Then you would be in the same predicament there as you would be in St. Ives Bay?—Quite so.

1612. What sort of holding ground is there in Barnstaple Bay?—Very good holding ground, and the water deepens about a mile and a half off the shore to 10 fathoms; the ground is good blue clay, and good holding ground.

1613. Might it not happen that when you had got to the westward of Hartland Point, the wind chopping suddenly round to north-north-west, you could not get round into Barnstaple Bay?—It would not happen, as we generally give the coast a good wide berth, and north-north-west would be on the beam to Lundy.

1614. Have you ever taken refuge in St. Ives?—No; I never go near it, if I can help it.

1615. But sometimes you have not been able perhaps to help it?—I have been up and down 132 times, and I have always kept clear of it.

1616. You never took refuge there?—I have not; there is not depth of water for a vessel to bring up in.

1616. You

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1617. You have not taken refuge in Padstow, have you?—No.

1618. And you cannot speak to that?—No, I cannot.

1619. Your decided opinion is, that Barnstaple Bay is the proper spot for a harbour of refuge in that channel?—Yes; it is the most dangerous part upon the south side of the Channel, and the deepest bay. We should be sheltered under Hartland Point, with south and westerly wind, and a vessel might run into the harbour there under bare poles in a westerly gale, which would be a most important thing.

1620. Mr. *Hassard*.] Have you ever been lying under the Mumbles Head?—I have, many years ago, in a small vessel.

1621. What is your opinion of that spot as a refuge for vessels if a break-water were thrown out?—No doubt it would make a very good harbour; but I should decidedly prefer Clovelly for the general benefit of the Channel.

1622. Did you say there were outlying sands from the Worm's Head to Nash Light?—Yes; with the exception of twelve miles.

1623. Whereabouts upon that coast?—The end of the Scarweather Sand lies about south from the Mumbles Light.

1624. Is there a clear entrance into the anchorage under the Mumbles Light?—Yes; from the mid-channel.

1625. Do you know anything about the coasting trade along that coast, from Swansea and Cardiff?—I do.

1626. With reference to a question which I asked the last witness, what is the nature of the navigation up to King Road?—It is a very critical and difficult navigation; and we there require a pilot. I have been up sometimes without a pilot; but I do not like to go even after all the experience I have had.

1627. From where does the difficulty commence?—From Lundy and above the Holmes to King Road.

1628. That is western?—Yes.

1629. Mr. *Ewart*.] You do not know St. Ives at all, I understand?—No.

1630. Suppose the anchorage at St. Ives is in a desirable place; do you not consider, as a site for a harbour of refuge, that St. Ives is better than the one at Barnstaple Bay?—It appears, from all that I have heard, that there is not sufficient water there, and it is out of the track of vessels coming from the westward.

1631. But supposing there is sufficient water, which do you consider the best site for large vessels?—Clovelly.

1632. Better than St. Ives?—Decidedly.

1633. Mr. *Augustus Smith*.] Suppose that you had got to the west of Lundy and you found that you could not beat out to the open sea, and were obliged to put back, could you not as easily fetch the Mumbles as Clovelly?—You could fetch either place, but that would be rather further back. Clovelly would be nearest and safest.

1634. Did you ever bring up under Lundy yourself?—Once only in all my travels.

1635. Are you acquainted with the anchorage sufficiently to speak of Lundy as to that?—I do not think it is much; it is very good in a westerly wind, about 10 or 12 points of the compass.

1636. How far north of west?—With a north-west wind it is all very well, but the wind flying round to the east, it is a most difficult thing to get out.

1637. Does the wind generally fly round to the south, or to the north?—To the north generally.

1638. As soon as it got round to the north you would be able to get away?—Yes; but supposing the wind comes round to the east, it becomes a very dangerous place.

1639. It would not fly round from the west to the east, would it; it is very rare for the wind to do that?—There have been cases of that kind.

1640. Mr. *Philips*.] What landmarks are there for vessels running into Clovelly?—There is Lundy Island north and by west, and Hartland Point. Lundy Light can be seen all round the compass.

1641. Are they very conspicuous marks?—The most conspicuous marks in the Channel; we always endeavour to make Lundy Island; in running up Channel we never go near the Cornwall coast.

1642. Do you know the amount of tonnage and number of vessels trading in and out?—I believe about 1,000 a week. I have had these statistics from the Chamber of Commerce; there is about 53,000 a year; that is more than 1,000 a week.

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1643. What

*Mr. Joseph Samson.*

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1643. What is the average tonnage?—Nearly 5,000,000 tons.

1644. *Mr. Baring.*] Have you seen any plan for making a harbour of refuge at Clovelly?—No; I drew a simple plan myself, but I believe here is a remark of Captain Vetch's. He says, "The site at Clovelly for the proposed breakwater is probably the best that could be chosen, and further, that in 1846 eleven vessels were wrecks in Barnstaple Bay, driven within the horns of it by a stress of weather; and it has been assumed that the loss of life and property in the bay exceeds, for the space, that of any other portion of the coast of the United Kingdom."

1645. Have you any idea of what the expense of forming a harbour of refuge there would be?—No, I can say nothing about that; there is plenty of material at hand, I believe,

1646. You cannot speak from your own knowledge, either as to the plan or as to the expense?—No, I cannot; I believe it would be merely a breakwater open at each end; the north-west and the south-east.

1647. You speak of the locality simply as the best position, in your opinion, for a harbour of refuge?—Quite so.

1648. In giving that opinion, do you refer to the coasting trade as well as to the foreign trade?—It would be equally valuable to all vessels passing along the Channel; the coasting trade as well as foreign vessels taken about that quarter.

1649. *Lord John Hay.*] I think I understood you to say that you thought Clovelly a proper place at which to have a harbour of refuge?—Yes.

1650. Suppose a vessel were to be met by a south-westerly gale off St. Ives, would it not be a very serious loss to run back as far as this place you speak of?—Where could she go but there; that would be the nearest port for shelter; it is only about 30 miles; she could run back to Hartland Point and get good shelter.

1651. I refer to St. Ives; that is more than 30 miles?—I thought you said Padstow; St. Ives is about 70 miles. A ship far down would have plenty of sea room with a south-west wind.

1652. Do not you think it very important that a harbour of refuge in a channel of that sort should be at the place which is nearest to the open sea?—I should think it a very dangerous operation to run down upon the Cornwall coast with a strong north-north-west wind; I should never attempt it.

1653. What is the character of that part of the coast of Cornwall; is it very low land, or high land?—It is high broken land.

1654. Therefore, it is not land which it is dangerous, speaking generally, to run down upon, is it?—You run upon a lee shore; I should never advise anyone to run upon a lee shore when he could keep the sea.

1655. But I speak of those occasions when it is necessary to run into a harbour of refuge?—I do not think it is much frequented, unless by small coasting vessels going round the land; ships in the foreign trade would never go near it if they could avoid it.

1656. *Mr. Kendal.*] For coasting vessels, Clovelly would not do?—Yes, for all vessels coming out of the Channel.

1657. What has made you so well acquainted with Barnstaple Bay?—Passing up and down so many times, and beating in the bay.

1658. You know nothing at all of Padstow?—No.

1659. Or of St. Ives?—No.

1660. And therefore you cannot speak of them?—No; the only thing I heard was, that there is no water, so that a ship cannot run in, and let go her anchor with safety.

1661. But you cannot speak to that, you know nothing about it of your own knowledge?—No.

1662. *Mr. Philips.*] What sort of holding ground is it in Clovelly?—Blue clay.

1663. Is blue clay considered the best holding ground?—Yes; and only 10 fathoms water a mile and a half off; it is a most important thing.

1664. *Chairman.*] When you said there was not sufficient water in St. Ives, you meant Padstow?—Yes.

1665. Did you intend to imply in any part of your evidence that there was not sufficient water in St. Ives?—No; I was never in it, and therefore I can say nothing about it.

1666. In point of fact, you know nothing about that part of the coast at all of your own knowledge?—No.

1667. So

1667. So far as the foreign trade from Bristol is concerned, you never touch the coast after you leave the Bristol Channel?—Not if we can avoid it. Mr. Joseph Sanson.

1668. And you yourself never have been obliged to do that?—No; I have been 130 odd times past it, I think, and never have seen St. Ives. 18 March 1858.

*Luna, 22<sup>o</sup> die Martii, 1858.*

MEMBERS PRESENT.

Mr. Baring.

Mr. Clay.

Mr. Dodson.

Admiral Duncombe.

Sir James Elphinstone.

Mr. Joseph Ewart.

Mr. J. H. Gurney.

Lord John Hay.

Mr. Haccard.

Mr. Kendall.

Mr. Macartney.

Mr. Philips.

Mr. Augustus Smith.

Sir Frederick Smith.

Mr. Trail.

Lord A. Vane Tempest,

Mr. Wilson.

JAMES WILSON, Esq., IN THE CHAIR.

Captain Christopher Claxton, R.N., called in; and Examined.

1669. *Chairman.*] ARE you a Captain in the Navy?—Yes, retired.

1670. Have you had much experience in the Bristol Channel?—A great deal.

1671. In what capacity?—Both as commander of merchant ships, and as having gone up and down it very often in large steamers, and also in yachts and other vessels, and a pleasure boat of my own.

1672. Although you are a captain in the navy, you have also commanded large merchant ships?—I have, out of Bristol with the West Indies.

1673. Have you commanded any steamers in the Bristol Channel?—I never commanded one, but I was nautical manager of the "Great Western" and of the "Great Britain."

1674. Have you navigated ships in the West India trade from Bristol?—Yes.

1675. How many years have you known the Bristol Channel?—Since 1820, well.

1676. Have you been harbour-master of Bristol?—I was harbour-master of the upper part of Bristol; part of my business was to help in the examination candidates for the situation of pilots in the Bristol Channel.

1677. In that capacity you had a great deal to do with the pilots in the Bristol Channel?—Not a great deal; under the haven-master the quaywarden or harbour-master was called in to assist in the examination of candidates for the situation of pilots, when required.

1678. Then your experience has given you a great knowledge of the Bristol Channel?—I think a great knowledge.

1679. Are you prepared to point out to the Committee the parts which you regard as the most dangerous in the channel?—I do not look upon it as a dangerous channel at all, except in very bad weather, when every place is dangerous; it is a very fine channel.

1680. Is your experience limited to the Bristol Channel, or do you know the coast below the Bristol Channel, the Devon and Cornwall coast, as well?—I have been to all the points spoken of on the Cornwall coast; I have been to St. Ives, Towan's Head, Trevoze Head, Pentyre-Clovelly, and Hartland Point; indeed, I may say I am very well acquainted with the coast, having navigated up and down it for many years.

1681. Have you ever been caught in a storm upon that coast?—Yes; for parts of two days and one night, in a large ship.

1682. Have you been obliged to take shelter in any harbour?—I should have been very glad to take shelter in any harbour if there had been one; I was two days and a night under close-reefed foresails, trying to weather St. Ives on the starboard tack, and Hartland Point on the port tack, and very hard work I had.

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1683. In

Captain  
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1683. In that case you had nothing for it but to keep the sea?—I was obliged to keep the sea; and at one time I had made up my mind, if I had got five times my ship's length, or 10 times my ship's length nearer the shore, to have gone into Padstow rather than have been wrecked upon the coast. I came up a couple of points, and weathered Cape Cornwall, and bore up for Falmouth.

1684. What do you regard as the point which offers the greatest facilities for an improvement to be made to enable a vessel in the position in which you were placed to take shelter?—I think halfway between Hartland Point and St. Ives would be the best place for that purpose.

1685. To what particular point do you allude?—Do you mean for a breakwater for large ships to find shelter.

1686. Yes.—I would rather see one made at Trevoze Head or Pentyre Point for the general trade than I would at St. Ives, but I should like very much to see one at St. Ives too.

1687. The point to which you refer is below St. Ives?—Above St. Ives 40 miles; between St. Ives and Hartland Point.

1688. Will you again indicate more correctly the particular point to which you have been referring?—If a large amount of money is to be expended in making a breakwater, and only one were to be made (though I am an advocate for a great many, and I think they ought to be made wherever they can possibly save life), but if only one were to be made, I would rather see that one somewhere at Pentyre Point or Trevoze Head than I would at St. Ives; I think it would be more useful to the mass of sea-going vessels and for the Bristol Channel.

1689. Where is Pentyre Point?—A few miles to the north-east of Trevoze Head; Trevoze Head, which, I may say, was the point of land that I always ran for coming from the West Indies.

1690. Trevoze Head was the point you always ran for during danger?—Trevoze Head was the point I always tried to make when the wind was not far to the northward or northward and westward, and when the land was not concealed; it depends upon the time of day and the appearance of the weather. You make Trevoze Head coming from the West Indies about three or four hours before you make Lundy, if at all, to the southward; and if I was coming in towards sunset, I liked to get hold of the land somewhere before I ran higher up in case of thick weather coming on, and Lundy Light being capped.

1691. In case of storms, where would you run?—That depends upon where the wind was from. If it was a downright westerly gale of wind, or the least southerly, or a very little north, I should run close up for Lundy Island and on to King Road.

1692. What is the most dangerous gale you have to encounter?—North-west.

1693. Supposing you were caught by a north-westerly gale, what point would serve you best?—Then you must hold on as well as you can; it would depend upon whether I was driven near the Cornwall coast, or whether I held to the northward at all, where I would run for; if I was obliged to bear up I should probably go under Lundy; if I was near St. Ives and could not weather that point I should be too glad to go into St. Ives Bay and take shelter if there were a pier there, but if I were higher up I certainly should be obliged to run back and bear up for Lundy or King Road. I am of course referring to being outward bound.

1694. You say that if you were to have only one harbour of refuge upon which public money should be expended, you would prefer, for all general purposes, that one should be made at Trevoze Head?—Yes; I would explain it in this way: the Bristol Channel has an immense trade from Cardiff, Swansea, Newport, and other places; they are increasing all of them enormously, to say nothing of Bristol and the smaller ports, and I think that one higher up than St. Ives would be more advantageous to all that trade, and would be six to one and half-a-dozen of the other as to which would be best for the trade coming out of the Irish Channel; St. Ives pier would be more likely to be useful to the trade of the Irish Channel from Liverpool and all the coast of Ireland than it would to the trade of the Bristol Channel, except that part of the trade that was bound round the Land's End to the English Channel.

1695. For the great bulk of the shipping you think Trevoze Head would be more

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more useful than St. Ives?—I think so; I will tell you the reason why: the most dangerous part of the coast is between Trevoze Head and Hartland Point; I hold that to be much more dangerous than it is further out, for the Atlantic swell, which rolls in for eight months or perhaps more in the year, heaves more directly on to Bude Bay than it does to the southward and westward of Trevoze Head, and heaves more in towards the shore, although it heaves bad enough everywhere, and it is very hard indeed for a vessel on a lee shore there to keep off that coast, particularly if she lies pretty close in, for the tide does not help her; the tide sets rather slantingly into Bude Bay, and the Bay is deeper.

1696. Have you any means of forming an opinion of the relative cost of making a harbour of refuge at any of these points?—I suppose it may be taken at 2s. a square yard; that depends upon the length and height of the breakwater, or the depth of water.

1697. I do not speak of the actual cost, but of the relative cost as between one place and another, and of the natural advantages which one place offers as compared with another?—They have all got stone; the whole coast is rock; and therefore I should say it was the same expense everywhere; but I have a strong opinion as to the way of forming a breakwater, and the power of Atlantic swells on the Cornish coast.

1698. Have you surveyed that coast with a view to the question of a breakwater?—I have surveyed Padstow two or three times, and I have been at Clovelly. I surveyed Milford Haven a few years back, and Swansea 25 years ago; I surveyed the Irish Channel and the Pembrokeshire Coast, nearly every harbour there, with a view to a terminus to the South Wales Railway.

1699. Have you surveyed this particular part of the coast of which we are now speaking?—I have examined it.

1700. Not surveyed it?—I have not been taking soundings in that particular part of the coast; I have surveyed Padstow regularly, and examined the coast.

1701. Do you consider, from the survey you made, that there is much facility for making a harbour there?—There is the greatest possible facility in my opinion for improving the harbour that is there; for it is extraordinary to say, it is the only point round about that coast which has deep water into it—there is no other place upon that coast on one side or the other that has got 17 feet of water over the bar; therefore it is the only place—there is no other—the rest are all dry; it is therefore a most important place.

1702. Is there deep water in Padstow Harbour at present?—It has 24 feet at dead low water inside in one place, and 16 to 17 feet over the bar, which is a very small bar indeed, very short; now, 24 feet of water at low-water spring tides gives 54 feet at high water, and 16 on the Bar 46 about.

1703. Is the entrance narrow?—Very narrow indeed; it is as narrow as Portsmouth Harbour.

1704. Then it would require to be widened?—The width, I think, might be improved. It would not so much require to be widened for the coasting trade, but for large vessels it would. I do not, however, consider Padstow adapted to very large vessels as it is at present, because there is not water inside for them, with room to swing; but for the great majority of the trade and the greatest number of vessels that are perpetually lost, for all that class and for saving the lives upon that coast, Padstow is an admirable place, in my opinion, to go to; and if I am credibly informed, from inquiry that I made, between 180 and 190 vessels have run in there at one time in a gale of wind from the northward.

1705. It is chiefly coasting vessels that frequent that part of the coast?—It is of coasting vessels I speak.

1706. Large vessels generally keep out more to sea?—They do; they never come near that coast if they can help it.

1707. Do you know what the holding ground is at Padstow?—Clay and sand.

1708. Is that good holding ground?—Generally.

1709. Have you ever been in there yourself?—Yes; I was in there about a fortnight or three weeks ago; I went on board some vessels that came in in fine weather and anchored there, where the deep water is; I asked them what brought them there; where they were bound to; it was very fine weather, the wind was northward; and they said they were afraid of a gale coming on; they had gone in there on a perfectly fine day, and were bound to the Irish Channel.

1710. Having surveyed Padstow Harbour, have you ever heard that the holding was bad?—There can never be any trial with the holding inside; it all lies in a mill-pond there; there can be nothing to disturb the ships. I should almost

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think that a kedge anchor would hold a ship there, unless it blew very hard just at the top of high water. I wish you to understand that I am retained in this case. I am a marine surveyor, and I was employed upon this occasion to examine Padstow Harbour; I was employed to examine Swansea Harbour; and I was employed to examine Cardigan Bay, all with a view to give evidence before this Committee, but as a matter of business, as far as I am concerned.

1711. Then you have been professionally employed in surveying Padstow Harbour?—Professionally, as a marine surveyor; I should have held it to be my duty to come before the Committee if asked, as a naval officer, to give information to the Committee either upon the whole of that channel, or upon any other parts in the north, with which I am quite familiar; I wish the Committee to understand that I should have come if I had been called, but, being examined, I give this evidence, upon which my credit is at stake, as a marine surveyor; it is my business; and I have been employed as such by all the first engineers of the day.

1712. Would that particular point to which you have referred now be available in case of a north and north-west wind?—Yes.

1713. A vessel coming down the Bristol Channel if a strong north-west wind caught her below Lundy would be able to make for this harbour?—If she were far enough to the westward, if not, she would have to run somewhere else, Clovelly for instance, if it were made, and she could weather Hartland Point.

1714. As you say you have been engaged to survey Padstow Harbour with a view of giving evidence before this Committee, have you formed any opinion of the facility which the harbour, as it at present exists, offers for improvement?—Yes, I have.

1715. What would you suggest as being the best means of improving the harbour?—I think that the sea wall which has been recommended by Captain Sherringham would do a great deal in widening the channel and deepening the bar; I myself have proposed to sink vessels to turn the tide off the two points where there is laid down a sea wall on that chart; to have obtained large hulls of vessels, loaded them with stones, and sunk them to turn the tide, so as to widen the channel, which is what I think is much wanted; cutting down Stepper Point is of all things most important, because with any wind to the westward of north or north-west away to south-west it is wonderful to see the effect of the wind under that high hill, and how the eddies must baffle vessels.

1716. Is there not a difficulty in getting into the harbour with a north-west wind now?—Against the tide, most particularly.

1717. The ships come in under the lee of the point of land?—Under the lee of the point of land, and you not only lose the wind in coming in, but actually the vacuum is filled up by the wind coming the other way, and you are taken aback, and on the ebb drift out, or the north-east wind.

1718. Are you aware of the suggestion which has been made to obviate that?—Yes, and I quite approve of it.

1719. Cutting down that point of land?—Cutting down that point of land, which would enable vessels to get up into 24 feet of water, and put them in perfect safety from thence upward.

1720. Cutting away that point of land would, you think, give a chance for that object to be obtained?—Judging from what has been done, I judge of what might be the effect of what would be done; they have cut down some part of the point, and I am credibly informed by the masters of vessels that they get up very nearly 100 yards further than they used to do before they are baffled; a vessel being baffled with a flood tide, would not so much matter, because it would take her in; but if she is obliged to take the harbour on the ebb for fear of being wrecked, and the ebb is running out at the rate of three or four knots an hour, and is taken aback, it is a bad job for her, because she is thrown upon the sand on the opposite side, where the breakers are very heavy at times.

1721. Then the two great improvements which you suggest are the cutting away of the hill in order to enable the vessels to get in with a north-west wind with a sufficient depth of water, and adopting some means or other by which the scouring tide might deepen and widen the channel outside?—It is so.

1722. Those two things, in your opinion, would effect all the improvements that are required to make Padstow a good harbour of refuge?—They would greatly improve it.

1723. Is there anything that you would suggest to further improve it?—You might dredge a little; I should think a week's dredging would give 20 feet of water over the bar.

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1724. Have you formed any opinion of the expense at which Padstow Harbour might be made one of the general utility which you have described?—I have gone into the estimates with others who know more about that kind of thing than myself; these are the sections; there is Stepper Point (*producing the sections, and explaining the same*). In here there is 24 feet of water; there are 16 and 17 feet on the bar here; this has been cut down; the vessels used to be baffled here; now they can get up to here without being baffled; this is the hill. These are the sections which, if you will allow me, I will hand in.

1725. Have you formed any calculation as to the cost of effecting these two improvements which you have described?—I think about 30,000 l. would do it; I think 15,000 l. or 16,000 l. would cut down the hill; and, I think, the stuff that came off the hill would go far towards completing the wall one side; and the other object might be easily effected by the material on the other side, of which there is plenty at hand.

1726. These two objects being obtained, is it your opinion, from the knowledge you have of that coast, that that would be the best harbour for the great bulk of the vessels frequenting that coast?—Yes; you see there are a great number of small harbours along that coast, dry harbours; and the vessels that trade from them must go along that coast, close to the shore of course, or else they could not get into their harbours. If those vessels are caught, there is not a single place they can get into at low water; they must be wrecked all along the coast if they do not get into Padstow; at high water, they may get behind the other pier harbours. There is not a place that has got what I may call low-water entrance except Padstow.

1727. Do most of the casualties occur when it is high water or low water?—I should suppose more occurred at low water than at high water, because vessels would run into Padstow that were caught there, and vessels would run behind the piers at other places; there is New Quay, and a place called Holywell; there is Bude and Port Isaac. That place called Holywell, possibly, may come before this Committee, for there is that going to be done there which I should think would very much encourage the Government to assist. A private company are going to make a pier and a breakwater of their own there, and to inclose a good harbour approachable at all times.

1728. Where is that?—That is close to New Quay.

1729. Do you know Barnstaple Bay?—Yes, a little. I have always been in the habit of keeping out of it, not liking it. I know of a great many wrecks there; ships are occasionally lost there.

1730. Is it capable of much improvement?—No doubt. A pier at Clovelly would be a very great blessing, not only to shipping resorting to the bay generally, but frequently to ships that come up the channel that have made no land at all before they get there, and at low water find themselves in Barnstaple Bay; and if they cannot get out again, and there is nothing left for them but to bear up for the bar, a pier there would save many a wreck; and, following the same line of evidence as was given with respect to Wick, I may state that there are 600 or 700 poor fishermen who are in terrific peril in every winter's tide, for after the wind has been blowing from the westward, a heavy sea sets in while they are out fishing; they cannot come in nearly half tide, and dare not take the beach.

1731. Is there a large fishing trade from Clovelly?—There are 170 or 180 boats that go out fishing, and it is impossible for them to get back upon that beach if there is any run upon it; and if they are caught, for about four hours out of every twelve, wrecks inevitably ensue for want of a pier or shelter from the ground swell, or northerly gales.

1732. What description of pier would be required for that purpose?—For that particular purpose, I suppose a pier of about 80 or 90 yards would save their lives and save their boats.

1733. That could be done at a comparatively small cost, I presume?—For that purpose; but while you are about it you might as well do something for the large ships too, making, in fact, one breakwater suit all purposes.

1734. Have you examined the wreck chart of that coast?—Yes; I have had great occasion for examining it, for I was the chairman of a company established for getting up wrecks all round that coast.

1735. From your experience of that coast, and after examining the wreck chart, and observing where the greater number of wrecks occur, what, in your opinion, is the best spot for a harbour of refuge for the purpose of preventing

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those wrecks as a whole?—It is divided; St. Ives would be very good for accommodating vessels in that quarter, and Trevoze or Pentire would be very good a little higher up; Clovelly would be very good for the higher part of the Bristol Channel, and for that particular bay, which is a very dangerous one.

1736. But what point do you consider would be best adapted for saving the largest number of these wrecks?—Padstow on the south side.

1737. Have you any doubt upon that point?—Not the slightest.

1738. Your opinion is clear that if only one harbour of refuge was to be made, with a view to the wrecks which have taken place upon that coast, making a harbour at Padstow would save the greatest number?—Yes, because the greatest number of wrecks are small vessels, and mere coasters.

1739. Large vessels do not frequent that coast much?—Large vessels try all they can to keep off it; but in some winds and gales they are caught or driven near.

1740. Mr. *Duncombe*.] I gathered from the earlier part of your evidence that, as a marine surveyor and an interested party, you give the preference to Padstow Harbour, but that for the general use of the Bristol Channel, including ships going foreign, you imagine that some other point would be a more eligible spot for a harbour of refuge?—For large ships drawing 21 feet of water I do not think Padstow fitted in a general way.

1741. You have surveyed Padstow Harbour?—Yes.

1742. Then having surveyed Padstow Harbour, you can state from your own knowledge that there is 24 feet of water in the harbour, and about 16 on the bar?—Yes.

1743. When you were in difficulty at St. Ives Bay for two days and nights, that was in a large ship?—Between 500 and 600 tons.

1744. Homeward bound from the West Indies?—I was outward bound to the West Indies.

1745. Will you state the circumstances under which you got into that part of the coast, because we have been told that vessels of that size, that is vessels going foreign, generally keep much more to the northward?—Yes; if the wind is to the northward, they try to keep to the northward; but if the wind is to the southward, they would then keep to the southward of the fair way.

1746. What was the circumstances under which you were caught?—I was caught coming down with a south-west wind; the wind came round from the south-east, which I started with; I was caught with a south-west wind, and it had not blown long before it went round to west, and it ended in north-west; and whenever I stood down channel on the starboard tack, the wind westerned with me, and whenever I came up channel on the port tack it northered with me, so that I could not get back.

1747. But such vessels as you were then in, either outward bound or homeward bound, would not go near Padstow, would they, unless driven by stress of weather?—No; they would take their departure from Lundy, and go out in the fair way of Lundy, and almost shape their course at once; and homeward would be further out.

1748. Then would not some point under Lundy Island, on the western part, if it was improved, be likely to be of more service to general shipping (I do not speak of the coasting trade of the Bristol Channel) than Padstow?—Most undoubtedly to the large shipping.

1749. But you give the preference to Padstow for the coasting trade and small vessels?—For the larger number. I like Lundy for the large ships better than any other, if it had a breakwater: I like it because it is more out in mid-channel; a more salient point.

1750. Sir *Frederick Smith*.] You said you had a strong opinion as to the mode of making breakwaters?—Yes.

1751. Will you kindly inform the Committee what your system is?—In all the parts of that coast that I have examined, where there is the least projection of rock, I find a sandy bay where there is the least shelter; and I very much think that any breakwater anywhere along the Cornish coast that was joined to the land would fill up. Therefore my opinion is, that whatever breakwater is made, there ought to be a small opening between the inner end of the breakwater and the shore, to let the ebb tide run fairly through.

1752. So as to form a scour?—So as to form a scour. I know an instance in the Irish Channel. A breakwater was made at a place called New Quay; there was 20 feet water there; you may walk over it now; it is all sand.

1753. In what space of time was that?—That was in about four or five years, I believe, but am not certain.

1754. If the Committee have in evidence that at present there are only 8 or 9 feet of water at Padstow, and that it could be deepened to 16, is that, in your opinion, an error?—You must look at Padstow in this way: first, as a place, as it is, for trade; and next, as a place of refuge for vessels to come. Now, the vessels that I saw coming up for refuge, did not go up to Padstow by a mile and a half; then there are 24, 22, 20, 19, and 18 feet; higher up, however, it is shallower, but they would have no business there. They do go there, for I have a letter in my pocket here of the number of vessels that have gone there, and they have increased within the last five years 100 per cent.; it is got by their paying a farthing per ton; if they go to Padstow, or near it, they pay a farthing a ton; and if they stop below Padstow where the deeper water is, they pay nothing. Therefore the number of vessels that have gone there or taken refuge is not reported where the deep water is; it is only reported where the shallow water is; where you are talking of nine feet and so forth, the chart will show the depths of water.

1755. One chart produced to the Committee shows eight or nine feet?—It is so; there is plenty of water in some parts, and only eight or nine in others; but that is higher up.

1756. Does not the channel require to be dredged out?—Not up there; I should not think that it requires touching; the water is smooth, and the vessels take the ground.

1757. What is the depth over the bar?—Sixteen or seventeen feet low water spring tides; I go by the admirable chart of Captain Sheringham; I did sound, but not as he did; he sounded for a year or more; I only a few casts.

1758. Do you find upon that coast more prevalence of fogs than upon the eastern coast of England?—They never struck me as being more prevalent; I have not particularly noticed that there were more than elsewhere.

1759. For foreign trade, do you prefer having a harbour of refuge on a salient point, or in the bight of a bay?—In looking at that, I must say that the objection to the bight of a bay is a great deal done away with by steamers always hovering in bays and places where ships congregate, and what might have been an objection formerly to sailing ships, is not so great an objection now; for if there were a harbour in the bight of a bay, there would be plenty of small steamers to tow the vessels out; but, generally speaking, I should like a salient point.

1760. For what reason?—Because you can get more readily to sea from a salient point than you can out of the bight of a bay with a prevalent wind.

1761. Lord John Hay.] Do you consider that a harbour of refuge should be formed with reference to ships that would take refuge in it in going to sea, or for the purpose of protecting ships that require some protection trading upon the coast?—In this case I take it that a harbour of refuge almost entirely applies to ships going to sea, because the winds that you want a harbour of refuge for, are fair winds for them to go into all their ports, that is, the north-west, the north-north-west, round to the south-west, they are fair winds up the Channels.

1762. You state that as your opinion with regard to where a harbour of refuge should be merely with reference to this coast, and not with reference to coasts in general?—Certainly not. In this particular case, I state the opinion with reference to coasters and sailing vessels that use that coast. Now vessels bound up the English Channel frequently do not get an observation for two or three days: there is always an inset into the Bristol and St. Ives Channels. I have myself, in coming home from the West Indies, been thrown up the Irish Channel when I thought I was in the Bristol Channel. There is that dreadful set of the Atlantic; the swell from the Atlantic there is terrific right off from the Cornish coast; that makes the danger; it is a danger that all are warned against. I have the instructions that are given to sailing vessels; they are told that the "swell of the sea is considerably greater with south and south-west winds, and will throw a vessel towards the English shore, especially between Trevoze Head and Hartland Point into Bude Bay, and between Hartland Point and Morte Point into Barnstaple Bay; that is one direction. At the entrance of the Bristol Channel there is a constant indraught, and the swell comes more from the west, being "turned by the direction of the Cornish land."

1763. With reference to the points which should be selected upon a coast for harbours of refuge in general without regard to the Bristol Channel in particular, do you think that a ship is placed in a more dangerous position when off a salient

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point of the coast than upon a straight line of the coast, supposing a gale of wind is blowing straight on shore?—That would depend upon what was under her lee, whether there was a place to run for, or whether she could clear the point.

1764. Supposing there is not a place to run for, which is the most dangerous position for a ship to be off: a salient point of that nature, where she can go off upon either tack whenever she chooses, or a straight line on the coast?—Upon a salient point you get more sea room directly, of course.

1765. Therefore you consider it a safer position for a ship to occupy?—Yes; because she would have more sea room after rounding it.

1766. She would be able to choose the tack which she wished to go?—That depends upon what is a very uncertain thing, namely, what the wind chooses to do with her; the alteration of two or three points would make all the difference; but if she touched upon a salient point, she would be sure to go to pieces, for they are always rock on that coast.

1767. I am supposing that a vessel is off a salient point of the coast; I wish to understand from you whether in one position she does not possess an advantage in being off a salient point of the coast, in consequence of being able to go either upon the starboard or the port tack, according to the wind, whichever tack suits her; whether she will not be able to lie off easier, under such circumstances, than if she was upon a straight line of coast?—Most certainly she would.

1768. Can you give the Committee the least idea of what the expense of forming a breakwater at Lundy Island would be?—Lundy Island is granite, and there is plenty of it, for it is 500 or 600 feet high.

1769. What depth of water is there?—I think it runs off into eight fathom; it only wants a breakwater from the northward.

1770. What extent of breakwater?—I should think 300 yards would do great things for it.

1771. Have you any idea of what the expense of such a thing would be?—I suppose 300,000*l.*, more or less.

1772. To what number of vessels would it be likely to give protection?—It would protect six or seven dozen small vessels and six or seven large ones, not more.

1773. Would that be sufficient, do you think, for the trade of that part of the channel?—I should think so, because they would only remain there when the wind was from the north-west round to south-west; and, if the wind happened to come at all full from the northward, they would go round the south of the island.

1774. Will you state the number of vessels again that you think would find protection in this place?—About six or seven dozen small ones inshore, with from three to four fathoms of water, and about seven or eight large ones, from a northerly wind; but many more from north-west to south-west winds.

1775. You think that that is about as many as would be likely to require protection during gales from the north-west?—I think so, because they do not last long.

1776. It appears that a very large number of wrecks take place in the Bristol Channel higher up, and upon the Welsh coast?—Yes.

1777. What would you propose should be done to decrease the number of those wrecks?—I think the importance of the Welsh trade of that coast cannot be over-rated; it is enormous; and the number of wrecks that take place there are in consequence in a great measure of the large number of vessels in the trade. There are three resting places there; there is Penarth, where I have seen from 200 to 300 vessels at a time congregated in a south-westerly and a west-north-westerly wind. Then the next stage is the Mumbles, where I have seen just as many; I would put them at 300, but I could not count them; I lived there three years, and saw that constantly; I have known the wind fly round from the southward, and small coasters lie aground. I have known it fly from the southward and from the south-south-east and the south-south-west; and I have seen one vessel break from her anchor, and carry six or seven high and dry, and the whole of them damaged, and some become wrecks.

1778. Do you think that any large portion of those wrecks would have been prevented, if a refuge harbour had been constructed upon any part of that coast?—At the Mumbles there would not have been a wreck; they would have been perfectly safe in a fine harbour.

1779. Therefore you are of opinion that it would be advisable to spend some of the money of the country in constructing a harbour of refuge at the Mumbles?—Indeed, I am, and long have been.



1780. Would it be an expensive work?—I should think not under 300,000*l*.

1781. Would a work erected there have any influence upon those numerous wrecks which occur higher up the Bristol Channel?—They are very numerous there; I very much suspect that a parcel of them are barges; there are a great many put out there, no doubt, but I very much suspect a great number of them are very small; there is an immense barge trade there. A great many of those wrecks take place from vessels running into one another; at Cardiff, and on the ground, the vessels all lie dry nearly, except those that choose to lie in Cardiff Roads, where there is three, four, and five fathoms of water; they all lie dry there, and many a vessel lies upon her own anchor, and knocks a hole in her bottom, and she is called a wreck; but she is beached under Penarth Head, and repaired in a day or two, as are many from collisions, which I dare say are noted as wrecks.

1782. Then do you consider it would be advisable to form any harbour of refuge higher up the Bristol Channel?—No, I do not think anything is so much wanted higher up. There is the part called Porlock, near the Foreland, which would make an admirable stopping place for the coast-going trade, a little above Ilfracombe, with an island breakwater.

1783. Would it be of use to the general trade of the country?—I think so.

1784. To large vessels?—To large vessels; it would make many a man go to sea from King Road with a foul wind who does not go now, and get that far in a tide.

1785. What number of vessels during the year would take advantage of such a place?—I should think instead of lying in King Road, if there was a harbour at the Foreland, or a harbour in Clovelly, they would go down by a steamer, and lay there, instead of lying in King Road, where it is harder to get away; they would go down, helped by a steam-tug, and stop there till the wind came round.

1786. Then this work would be rather more a convenience to the trade than a necessity?—Most certainly, but still an asylum harbour.

1787. Then, as to works of necessity, apparently you are of opinion that Mumbles Head and Lundy Island are the two places where they should be constructed for the trade of the Bristol Channel?—Yes. I cannot conceive any better place for the large trade that uses the Welsh side of the Bristol Channel than the Mumbles; and I will tell you why, there is a large trade in copper ore and coals, and not a small one from the west coast of the Pacific and from Cuba, and that comes home in ships probably drawing 19 or 20 feet of water; these last cannot get into Swansea on the neap tides; they must wait for the springs, and they do now anchor as near the Mumbles as they can, and do the best they can; sometimes they take the beach; if they are caught by a southerly wind, they run the risk; but very large ships anchor at the Mumbles, loaded with copper ore, from Cuba and other places, and wait sometimes 10 days; with a pier they might lighten, and get into port sooner.

1788. What number of vessels do you suppose, in the course of a year, would take advantage of a work executed at the Mumbles, speaking roughly?—Speaking roughly, looking at the prevalence of the westerly winds, I should say two-thirds of the trade of that channel would anchor at the Mumbles; the small trade, more particularly the coasters.

1789. But you also think that a considerable portion of the foreign trade would take advantage of it?—Yes; I should have gone to the Mumbles myself more than once, if there had been a harbour, otherwise large vessels would keep clear of that coast a few miles.

1790. But I am alluding rather more to vessels taking advantage of it for the purposes of refuge than for the purposes of convenience?—Exactly so; it is for the purposes of refuge, I am now considering it. If I could have got to the Mumbles, I should have been very glad indeed more than once, but I was afraid of the wind southering upon me; it is not the course that large ships outward-bound or inward-bound would take; they have no call to go anywhere but the fair way, or near it.

1791. Then, with regard to the Welsh coast, the higher part of the coast, the Mumbles is the proper place at which to have a harbour of refuge, and with regard to the lower part of the Bristol Channel, you think Lundy Island is the best place?—I think Lundy Island would be the best place for the lower part of the Bristol Channel.

1792. Mr. Hassard.] Is there not a very large coal trade along that north coast of the Bristol Channel?—There is a very large coal trade, and an iron trade also.

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1793. Is it not the practice of those coal vessels to come down along that coast upon their voyage to the south of Ireland, for instance?—All the way along by stages with foul winds.

1794. I believe they often put into Milford at night?—They are obliged to sometimes, if they get as low as Milford, and it comes on to blow.

1795. That is in consequence of being caught by a south-westerly wind, is it not?—That is from being caught by a westerly wind that blows hard.

1796. If they do not succeed in getting so far to the westward as Milford, and it comes on to blow hard from the westward, where can they run for?—Caldy Island.

1797. Is that a safe place for vessels to run under in any large number?—Yes; that is a very good place.

1798. Then when they got out of it, if the wind made to the southward, how would they be situated in Tenby Bay?—They would go through the Sound, and get into Milford, or go round the island, if it did not overblow.

1799. Can they get into it with the wind at south-west?—They can go through the Sound between the island and the main with a south wind.

1800. If the vessel is not so far to the westward as Caldy Island, will she not have to run back to the Mumbles?—To the Mumbles, there is no other place for her; Carmarthen Bay is a dreadful place to be caught in, and the east of Swansea Bay as bad.

1801. Do many vessels run back under these circumstances?—A great number.

1802. If the wind comes on from the southward, are they not in a bad position at the Mumbles?—Dreadful, when it blows hard.

1803. That applies particularly to the coasting trade?—Yes.

1804. With regard to a foreign bound vessel, if she were to run for King Road, is there not a good deal of danger in running for King Road?—I do not think there is the slightest.

1805. Can she run without a pilot?—I have.

1806. Do they usually?—I could not get a pilot in a gale of wind, and went up without one; but of course ships are obliged to take a pilot if one comes to them. The best answer I can give to that question is, that our "Great Western" never missed coming into Bristol six times a year for eight years, and never stopped.

1807. She was a steamer, I believe?—She was, but she drew a large quantity of water; then I am a strong advocate for the "Leviathan" going to King Road, if there were landing conveniences.

1808. Probably the master and the mate of the "Great Western" were qualified as pilots for navigating the channel so frequently?—Every man who goes up and down often, if he pays any attention to it, and has any nouse, will soon become a pilot of the Bristol Channel; the landmarks are so clear, and the course so straight, or so little varying, that a man can scarcely make a mistake; he passes the Holmes, then he comes to a light ship seven miles from it, which keeps him off the Cleveland Sands, and then he has a straight course up by the land or nearly. If she drew 18 feet of water, he may go up at high water in the channel, or over the banks; if 24 or 25 feet of water, he may go with a rising tide upon the springs without fear at high water, or the last hour's flood.

1809. Would you be an advocate for a man running to King Road without a pilot?—Rather than run ashore.

1810. The tide is very strong there, is it not?—Beautifully strong; that is one of the best parts of it.

1811. Is there very thick weather there?—*Cæteris paribus*, as it is in other places; the "Great Western" has come in in a snow-storm from the Atlantic once, if I recollect.

1812. Do you think it would be preferable for a large vessel to run to the Mumbles if she had shelter there, rather than to run into King Road?—Yes, because she would be 70 miles further then upon her voyage, always supposing her outward bound.

1813. Did I correctly understand you to say that at Padstow there was always 17 feet of water over the bar at low water, up to the anchorage where you describe the 24 feet of water to be?—Yes, I think between 16 and 17. I only got one or two soundings of that water, but it goes up increasing to above Harker's Cove; I think it is 24 feet there, with other depths above 17 feet.

1814. Is that all the way up to the anchorage you spoke of?—All the way up.

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1815. How far from the mouth is it?—About a mile or a mile and a half; it is where a steamer goes twice a week—a long steamer—and anchors.

1816. Mr. *Ewart*.] Would there be room in Padstow Harbour for large vessels to bring up in bad weather?—Not comfortably.

1817. It is very narrow?—Very narrow; there is no great room to swing with much cable out.

1818. Taking into consideration the general requirements of all the trade, do you consider that St. Ives Bay is a situation which would be better for a refuge harbour than any other place higher up the Bristol Channel?—Speaking of all trades, that is the Irish trade and the Liverpool trade, going round the land you may say, I should think, that it is six of one and half-a-dozen of the other. St. Ives would be very useful indeed to a great many vessels, and higher up Trevore Head, Padstow, Clovelly, Lundy, and the Mumbles, would be a great deal better for the Bristol, Swansea, Cardiff, Newport, and Gloucester trade.

1819. I think you know the coast very well all the way up to Holyhead?—Very well.

1820. Do you know Cardigan Bay?—Yes, quite well; I was there all day on Friday sounding the bay.

1821. What are the prevalent gales of wind upon that coast?—The same as upon others; south-west, and north-west, and north; just the same everywhere; a gale of wind comes on generally with a south-west wind and then flies by west and north-west to north.

1822. Those are the prevalent winds?—Those are the prevalent winds and dangerous ones.

1823. In the case of large vessels outward bound from Liverpool, caught by a south-west or south-south-west gale, which do you consider would be the best port for them to take refuge in?—St. Tudwall's Bay is the only place at present they can go to unless they go back to Holyhead; and St. Tudwall's is rather open to the south-south-west and unpleasant to the south-east, but it is a magnificent anchorage, and I think if a breakwater were made off Kemmaes Head in Cardigan Bay, it would be a great blessing to the whole Liverpool trade, and the whole coasting trade of the country.

1824. If a breakwater was made to the south-east of St. Tudwall's Roads, you consider it would be a very good breakwater for almost all the prevalent gales upon that coast?—I was a whole winter and part of a summer surveying all that coast with a view to the terminus of the South Wales Railway.

1825. You are not an engineer?—I am enough of an engineer to know that I am not one.

1826. Can you give any opinion at all whether it would be an expensive thing to make a breakwater at St. Tudwall's sufficient to shelter vessels exposed to south-south-west gales?—No; I will not give an opinion upon that, because I have only been there twice in my life, and it is so long ago that my memory fails; but looking at the chart, I should think so.

1827. Is it your opinion that St. Tudwall's, supposing a refuge harbour was made there, would be a better refuge for outward bound large vessels than Holyhead, better than putting back to Holyhead?—Better than putting back to Holyhead, certainly; she would be further on her voyage, and easier to get away.

1828. South-west gales very often end in north-west winds?—They do.

1829. Then as a vessel in Holyhead could not get out in a north-west wind, might she not go to St. Tudwall's Roads rather than to Holyhead?—Yes.

1830. Then, I am to understand from your evidence that you consider St. Tudwall's Roads would make a better refuge harbour than Holyhead?—For southerly winds in that part of the Channel.

1831. Taking everything into consideration, the probability of the wind veering round, a vessel would have a better chance of getting away from St. Tudwall than from Holyhead?—There is no doubt about her being able to get away better; but there is another way of looking at Holyhead, which is with reference to all the dangerous sands out by the north-west buoy, where vessels being caught, and not being able to get round Holyhead, may get into Holyhead and be safe; that in north-west gales would have been in peril, and in such cases they may be driven upon the sands, as they often used to be.

1832. But can they get into Holyhead as a refuge harbour with a south-south-west gale?—Yes; you can get so far, and you can anchor under the lee of it if you do not get into it; it forms a breakwater of itself for everything under its lee, right across where anchorage is.

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1833. Mr. *Augustus Smith*.] You mentioned just now a position in the upper part of the Bristol Channel, Porlock, near the Foreland?—Yes.

1834. Which do you suppose would be the preferable position, supposing any large work was carried on there, that locality or Clovelly?—That would be of no use to vessels that are wrecked in Bideford and Barnstable Bay, the Foreland would not save them from that; the one at Clovelly would save them certainly.

1835. Comparing Clovelly then and that position, and Lundy and the Mumbles, and looking to the advantage to the shipping generally, both to the small coasters and the large homeward bound and outward bound vessels, to which position would you give the preference for any large work to be carried out?—I should like to give it to all three.

1836. But supposing there is only one large work to be executed, which would be the greatest boon to the shipping?—Then I think the Mumbles would be the greatest boon to the greatest majority of vessels.

1837. For what sized ships would it be available if any large work were to be carried out at the Mumbles?—For the “*Leviathan*,” if necessary, drawing 28 or 30 feet.

1838. It could then be used as a position for ships of war?—Yes, and it would not be a bad place in which to have them, for in the last war you know there was a vessel called the “*Argus*” burnt, sunk, and destroyed in sight of the Mumbles, or almost so.

1839. You spoke of an accumulation of sand taking place wherever there was a projecting point along the west coast of Cornwall and Devonshire?—Yes.

1840. Have you found that to be the case all along every projecting point of that coast?—All along the east side where there is a projection, and the same on the west, wherever the rocks projected as a pier would, fixed to the land.

1841. But the water appears to be very deep on the east side of Trevoze?—There is a little bit of sand there where you will see an anchor laid down; but where there are no bays, there is no sand.

1842. Do not you think that a large projecting breakwater would extend so far out that it would be very unlikely that the sand would get round the head of it?—I do not want to shut up the run of the tide in the bight of it; I do not care how far it goes out, but there ought to be an island breakwater everywhere; whether the opening be wide or narrow, it should be deepish.

1843. Are you acquainted with Dover Harbour?—Yes; I have seen the work going on there.

1844. If that had been made an island breakwater, would not the shingle very soon have filled it up?—But then the shingle is so different from sand; it is a very difficult thing to deal with shingle.

1845. But they are both carried on by the action of the water in the same way from the west to the east?—Yes; but it is by no means certain what is going to happen at Dover Harbour yet; it is not done yet; the shingle has bothered them a good deal yet; besides, it is not across the mouth, but points with the river.

1846. If the shingle got round the head of the breakwater, would it not fill up the place? I want to know, if any breakwater were made along the north-western coast of Cornwall, whether the sand would be likely to get round the head of the breakwater, so as to affect the anchorage within?—It is the sand that is kept in suspension on the ebb tide I am afraid of; it does not go round the head, but it is everywhere; it is the same with the bar at Hayle, in St. Ives Bay; it is one mass of sand; there is as much sand there as anywhere I know of.

1847. Where do you suppose that sand has been brought from?—I do not know whether it has been tested, but most likely it is like the Padstow sand, which is 90 per cent. of lime from sea shells, probably thrown up from the sea bottom by gales of wind.

1848. Pentyre Head, from which you thought it possible a breakwater might be thrown out, is immediately to the east of Padstow?—It is immediately to the east; there is an island called the Moulds.

1849. Would you give the preference to that position, or to Trevoze Head for a harbour upon a large scale?—I am not quite sure; I should like to look at it again. I like an island; the Moulds gives facility at Pentyre Head; I would join it to the main land, and then throw that island down into the sea, extending it to the eastward.

1850. Then you would get an accumulation of sand, would you not?—No; I would have some culverts there, between the island and the points.

1851. There

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1851. There is now, immediately round that head-land, nine fathoms; it seems to be close in-shore?—That is one of the beauties of it; that nine fathoms is a good way off.

1852. It is marked here, immediately close in-shore, within the head (*pointing out the same*)?—It is on so small a scale, that there is hardly room for the figure.

1853. That depth of water is within the operation of Pentyre Head?—It would enclose a good space, but it would fill up, I believe, if it were joined solid to the main land, because there is sand in the natural bay already.

1854. Now, for the immense amount of shipping coming round from the north from Liverpool and the Irish Sea to go into the English Channel, which would be the best position, Trevoose Head or St. Ives?—If they were caught with a north-west wind, and it was blowing hard, they might not be able to fetch St. Ives and they might fetch Trevoose Head; there is a greater area of water off Trevoose Head that ships traverse in than there is near St. Ives Head, for going to the refuge.

1855. But unless they are very near in shore would they be able to get round the Land's End?—Of course their efforts would be to get round the Land's End; and, if they could not pass round the Land's End, St. Ives would be a great blessing to them.

1856. Mr. *Philips*.] I believe you surveyed the Mumbles, did you not?—I did.

1857. In what year was that?—In 1833.

1858. Is that the report which you made upon that occasion (*handing the same to the Witness*)?—Yes, this is my report.

1859. Has your attention been called to the Mumbles since that time?—Yes, it has; I was there all day on Saturday last, sounding.

1860. Do you adhere to the opinion which you expressed in that report?—Yes. I have made another report; I have made that report since (*producing the same*).

1861. Does it not frequently happen that when vessels start from Bristol with a southerly, easterly, or south-east wind, when they open Barnstaple Bay they find that the wind shifts round to the westward?—Yes. I have gone away in a south-east wind, and got down the channel, and as soon as I have opened the bay, it has gradually southerened on me at Barnstaple Bay; before I have got round Hartland Point, past Lundy, it has been south-west, or nearly so.

1862. In case of the wind blowing very violently from that quarter, where would vessels be compelled to go?—They would be compelled to get under Lundy, or to go to King Road.

1863. Supposing a harbour of refuge were established at the Mumbles, could they run advantageously to that point?—Most certainly, because there would be no possibility of making a mistake under those circumstances, inasmuch as they would have their departure from Lundy, and in about three hours' or four hours' run they would be in the Mumbles, in the slowest ships.

1864. Do you consider the Mumbles a preferable place to Lundy?—For the coasting trade I do, because they keep all along that coast laden with coals and iron, &c. &c.

1865. After the wind has been blowing violently from the south-west, it very often shifts to the north-west; so most of the witnesses have said who have been before the Committee?—Yes.

1866. In such a case, would a vessel have any difficulty in starting from the Mumbles with a north-west wind?—They would not come out from the Mumbles with a north-west wind if they were bound to sea; with a north wind, or a north-north-west wind they might make a good leg of it; if they were bound up the Irish Channel, that would be a bad wind for them; I think they would not start, particularly if it were made a harbour; it is a good shelter now with that wind, and up as far as to the south-west.

1867. Is the anchorage good at the Mumbles?—Capital.

1868. What is it?—Clay.

1869. That is the best anchorage, is it not?—That is the best anchorage.

1870. Is there plenty of material there for the formation of a harbour?—Plenty; there are three large lime-stone cliffs close at hand, and the vessels lie high and dry under the lime cliffs to load stones; but if there were any difficulty about that, there are the gentlemen in the copper trade there who would be very much obliged to any one to take all their slag away, which would make a capital breakwater, and perhaps pay them too.

1871. Whence is the principal coal trade to the South of Ireland?—From Car-

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diff and Swansea and Newport; the trade of Swansea has increased enormously of late, and as to Cardiff, everybody knows how great that is; last year there was a Bill got for new docks at Cardiff, because the amount of accommodation in those magnificent Bute Docks was insufficient; the coal masters last year stated that they could double the quantity supplied if they had accommodation, and I think they supply hard upon 2,000,000 of tons a year of coal alone.

1872. I think you stated, in answer to an honourable Member, that if you were driven to the disagreeable alternative of selecting one place only for the expenditure of a large sum of money upon the Bristol Channel, with regard to the interests of vessels passing between Bristol and Gloucester, and all the other parts, you would recommend the Mumbles?—The greatest proportion of the traders, those most likely to be wrecked, come from and keep on board the Welsh shore: these do now use the Mumbles.

1873. With regard to the lower part of the channel you have mentioned, I think, Caldy Island?—Yes; that is the next stopping place.

1874. Could any improvement be made there advantageously?—I do not think it wants it; it has natural advantages; there happens to be a Sound between the island and the land; the island is a very good shelter, and there happens to be a Sound in deep water between that and the land, so that if vessels were caught by southerly winds, which are the winds which most affect us at the Mumbles, they could run round the island into Milford.

1875. Pursuing the course from Caldy Island round Milford Haven up to Holyhead, are there any places upon that coast where you recommend the establishment of a harbour of refuge?—There are two places upon that coast where harbours of refuge might be made; the question is, which would be the best for the general trade; I surveyed and reported upon a breakwater, and a pier at Fishguard; but that was with a view to its being the terminus of the South Wales Railway; it was intended, I think, at that time to have made the pier itself the railway terminus, making it a breakwater, a pier, a harbour, and everything in one, because there are only four points of the compass from which Fishguard is much affected by winds; those are from the north-north-west to the north-north-east, or north-east. The next place that I surveyed and examined was Kemmaes Head, in Cardigan, and for the general trade I think that better adapted, because vessels can get away from Kemmaes Head round Strumble Head and St. David's, to sea, when they could not get from Fishguard. Fishguard would have been greatly benefited by a breakwater, which would save many wrecks. It is a beautiful bay, only open to about four or five points of the compass; but for the general trade, I should prefer Kemmaes Head.

1876. Looking to the general preservation of life, and the diminution of shipwrecks, should you consider that those objects could be accomplished most readily by the expenditure of a very large sum of money in establishing, we will say, one large harbour of refuge, or, by the general improvement of existing harbours, speaking with reference to the general interests?—That would depend upon the extent to which you could improve existing harbours; as to how many of them, and what depth of water you could get; but, I think, money would always be well spent in improving harbours that exist, and making them deeper. I do not think one pier 100 miles away from another place is enough; I do not think one breakwater for the Bristol Channel enough; there are 150 miles up to the next safe place, we will say; I do not think one would be enough upon the coast of Cornwall; and I think that, for about half the money that is being spent at Alderney—some think to little or no purpose—(we are spending millions for that work)—if part of that were only expended in improving such a place as Padstow, and making little piers here and there further out, there would be a greater quantity of lives saved, and less wrecks would take place.

1877. Sir J. Elphinstone.] Can ships run to King Road in the night?—Yes, when clear.

1878. What is the rise and fall of the tide at Padstow?—About 28 feet at high springs.

1879. Could Padstow, under any circumstances, be made a harbour for large ships, so that they could run for it at any time of the tide?—If the Doom Bar Sand could be washed away.

1880. As long as the bar is there it could not be made a harbour for large ships?—It is too narrow for long ships to swing; but in extremes, life and ship would be saved near high water.

1881. Supposing you were to carry one mole out off that point, and another off

the sand, would that carry the bar out along both?—I think it is likely it would; I think the sand would follow.

1882. And that would improve the harbour?—No, I think it would not.

1883. I want to know whether, by making two pier heads, you would carry the bar out, and instead of having the water at 14 or 15 feet, you would have, over that bar, 20 feet, which would practically obviate the bad effects of the bar?—I am not able to answer that.

1884. I think it appears from the evidence which the Committee have had before it, that it is absolutely necessary that you should have a harbour of refuge upon the Welsh coast, to accommodate the very large coasting trade on that coast?—I think so, and I have always thought so.

1885. And you have no doubt that the Mumbles is the point for that purpose?—I have no kind of doubt whatever about it, for I surveyed it on Saturday, and I did not find any alteration whatever in the depths; I like it better than I did 20 years ago.

1886. That anchorage would, in your opinion, obviate most of the disasters, and, in fact, be the point most necessary for the safety of that great trade that goes along that coast?—I think, so far, if you look at the wreck chart, you will see what a quantity of vessels are wrecked in that bay, and they are actually wrecked from pushing one another on shore in gales of wind, at least many were in my time.

1887. Looking at the Cornish coast, and viewing the question in a national point of view, both with regard to strategy and for the requirements of vessels bound to the westward and round the Land's End, do not you consider that St. Ives Bay is the best place for a harbour of refuge; take first the question of strategy?—As a strategical point, most certainly St. Ives would be the best place.

1888. Then, secondly, as a harbour that would accommodate ships of every size?—I must go back to my old answer, that for ships in the Bristol Channel it is not high enough up.

1889. But I am putting the Bristol Channel out of the question; I am supposing the Bristol Channel to be accommodated by the Mumbles, and I am looking now to the trade of Liverpool and to the foreign trade of the country generally?—It would be a great blessing to ships that could not get clear of the Land's End, but it is too near the Land's End; ships always take care, if possible, to keep off the coast, particularly if bound round the Land's End, but if they did not want to go round the Land's End, it would be a charming place for them, and a great comfort.

1890. Would not the Start Point be the best point for a harbour of refuge in the Channel?—Much wiser heads than mine have given it as their opinion that Portland and Plymouth are enough for that part of the Channel.

1891. What is your private opinion upon that subject?—My private opinion is that you ought to start a pier at every point offering shelter.

1892. Taking that comprehensive view of the subject, do not you think it would be a very desirable thing to have a harbour at the Start Point?—It would be very desirable to have harbours wherever you could get them; now you have enormous trade, and where it is increasing as it is, you cannot have too many; if you would only lay out half the money, as I said before, that you are spending at Alderney, you would make them all, or many of them.

1893. You mentioned Alderney; do not you believe that the money that has been laid out at Alderney has been thrown away?—I do indeed, particularly as I know something about it; nobody goes to Alderney, and nobody knows anything about it, except the Lords of the Admiralty, and they do not tell you what has been done. If you have the question asked in the House of Commons, I think you will find there is not room for seven ships in the whole space they have provided, except they bump against each other. They have made works which require 3,000 men to man the guns, and they have not 700 there; you will get the whole truth in the House of Commons.

1894. Would not a couple of sail of the line putting out of Cherbourg take Alderney before they could possibly send men there to defend it?—Certainly, if there were no more there than there are now.

1895. There never are any more, are there?—No; but there is no war just now.

1896. It requires 3,000 men to man the works, does not it?—So I am told by a Lord of the Admiralty.

1897. *Chairman.*] You are only told that?—Yes. I only touched upon it in reply to the question asked me, as to getting money to do works.

Captain  
C. Clifton, R.N.

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1898. Mr. *Clay*.] Turning to the Bristol Channel, and to the Land's End, and looking at the fact that there are so many things that it appears, in your opinion, advisable to do, that you can hardly say which you think the most advisable, and supposing that you had the task of providing, as far as possible, for the security of the whole of that coast against wreck; I will not suppose that you had an absolutely unlimited command of money, but that you had a reasonable command of money for such expenditures as you can prove to be requisite for the security of the coast; under these circumstances what would you propose to do?—To advance that money, and do what a private company are going to do at a place called Holywell, which is a little to the westward of Trevoise Head; there a private company are going to make a harbour for their own special purposes; and, if a grant was added to that, it might make one of the finest harbours both strategically, humanely, and mercantilely speaking, anywhere to be found.

1899. Do you consider that that would be, if not a perfect protection, at any rate the best protection to be given at one single point to the whole of that coast?—Yes, I have seen the plan, and I think it would be a very, very good protection, and would not require another outlay in the shape of a breakwater near it.

1900. Lord A. *Vane Tempest*.] Taking the answer which you gave to an honourable Member of the Committee, I understood that you thought that money would be best employed in the improvement of existing harbours, rather than spent in the construction of one place?—No, I should like to do both; I should like to see all the existing harbours improved, because wherever they are improved, less wrecks would not be so likely to take place; but I should like to see large works also at salient points or places where most advisable.

1901. Looking to your view as expressed in the answer to the last question which the honourable Member asked you as to how you would spend money to meet the requirements, you stated that you thought the best mode would be to give a grant of money in aid of a private company?—Yes, because they are going to spend a large sum of money for their own purposes, and a grant added would make that spacious which may be contracted.

1902. Do not you consider that it would be a very good plan to lay down, that Government should grant money in aid of local endeavours to create harbours upon different parts of the coast where the trade requires them?—Certainly.

1903. Mr. *Kendall*.] Taking the coast of Cornwall, from Cape Cornwall to Hartland, I think you say you consider that Bude Bay is the most dangerous?—I do; it is all dangerous, but Bude Bay most so.

1904. Suppose a breakwater were made at St. Ives at a large expense, and one again at Clovelly at a large expense, as harbours of refuge, would either of those serve as harbours of refuge for vessels embayed in a dangerous wind in Bude Bay?—Neither of them; vessels in Bude Bay could not get to either of them.

1905. Where would you go in that case?—To where we were just now, near Trevoise Head or Pentyre Head; somewhere there, which is halfway between Cape Cornwall and Hartland Point.

1906. Are you talking of harbours for large vessels?—Yes, for large vessels; but for coasters I would improve Padstow, and go to it on the flood.

1907. Then that would not supersede the necessity of Padstow?—Not the slightest in the world.

1908. Not Trevoise Head?—Nothing; anywhere else would supersede the value of Padstow, if it were deepened and improved.

1909. I understand that, if you had those three national harbours, you would still require Padstow to be improved and made a harbour of refuge for that class of vessels which are now most subject to wreck?—I think so, upon that coast.

1910. Now, speaking of the expense at Lundy, are you correct as to 300,000*l.*?—That all depends upon the length to which it is brought out, and the depth.

1911. What do you think Trevoise Head would require?—Somewhere about the same, and Pentyre about the same.

1912. What do you think of St. Ives?—Something about the same.

1913. And Clovelly?—And Clovelly the same.

1914. Are you quite safe in assuming that Padstow could be improved for 30,000*l.*?—Opening and cutting down Stepper, I am assured could be done for 15,000*l.*, which would vastly improve Padstow.

1915. Suppose you pass the salient point and get beyond it, how can you get back



back again?—That depends upon the wind; if you are embayed you cannot get out.

1916. Suppose you passed the breakwater at St. Ives in a gale of wind at north-west, and failed to make Hartland, could you get to St. Ives again?—No, not if it blew hard; the ship would make five points leeway, and the heave of the sea would send her ashore, besides which, the flood tide sets in upon the coast thereabouts.

1917. You said that the entrance at Padstow was narrow; you heard what Captain Sheringham said about getting a wall across Harbour Cove; do you think that would widen it?—It is sure to widen it, and wash away part of Doom Bay.

1918. Then you acknowledge there is a great necessity for a harbour of refuge at Cardigan Bay?—Most certainly; I do not know any place that wants one more.

1919. Which part in the whole of that coast offers the greatest facilities for a harbour of refuge for the purpose of shipping generally?—Kemmae's Head.

1920. Why?—Because it is a beautiful bay, and there is plenty of stone to make a pier; it has deep water close to the shore, and a great many wrecks take place in the neighbourhood.

1921. Have you seen the general channel chart which has been made with respect to that place?—I have; respecting Padstow you mean.

1922. Is it a fair chart?—I think it is extremely fair; it is not my doing; it was handed to me to give an opinion upon, and I am ready to give it; it is perfectly true in my opinion, that the whole of that area of blue, with a north-west wind, cannot get any lower down than the place marked here, several miles east of St. Ives, not when it blows hard, it must be blowing a gale of wind, and you must have the Atlantic swell driving ships this way to leeward.

1923. Mr. *Baring*.] Does not that chart assume that a vessel is very close to the shore?—That is within nine miles.

1924. Do vessels engaged in foreign trade ever keep so near the shore as that?—Not if they can help it, but they may be blown there, or run there in thick weather.

1925. Therefore it refers only to coasters?—To vessels caught in a gale of wind.

1926. This chart supposes a vessel caught within nine miles?—Yes.

1927. Consequently she would be within nine miles when the storm came on?—Upon the general supposition, you are right that the ship would be.

1928. Consequently, that is upon the assumption that the vessel is closer to shore than she need be in such case?—If she were further off, say 18 miles, she would go clear of the Land's End, with a wind that would embay her if only nine miles off.

1929. But is it fair to suppose that all foreign vessels would be within this line, and therefore would have to choose between the port of St. Ives and the port of Padstow?—No; what it shows is this, that a vessel that is within that distance cannot get round the Heads in a north-wester blowing hard.

1930. It simply shows that if a vessel is within that line, with a north-west wind blowing, she would be able to get to Padstow within a certain distance and to St. Ives within a certain distance?—Yes.

1931. But would she not be able to get to Clovelly?—No; she would not weather Hartland with a north-west gale.

1932. That is, when the gale came on, if she was within that distance of the shore?—Or if she got there by being blown there.

1933. But supposing she was further off?—Then she would weather Hartland, and get into Clovelly, or get under Lundy.

1934. If she was further off the shore, she would be able to make Clovelly?—Yes.

1935. You stated, I think, with respect to the general trade from Bristol, that you thought a harbour of refuge at Lundy Island and one at the Mumbles would give the greatest benefit to the trade generally?—Lundy Island would be better for Bristol and for large ships, and Swansea better for all the coasting trade.

1936. When you mentioned Swansea, you meant that that would be more for the coasting trade than for the foreign trade?—Yes, but there is a great deal of foreign trade there also.

1937. Take the foreign trade from the Bristol side, is it not a very valuable and extensive trade?—Very.

Captain  
C. Claxton, R.N.

22 March 1858.



Captain  
C. Claxton, R.N.

22 March 1858.

1938. Which would give the greatest benefit to the foreign trade of Bristol, a harbour at Lundy Island or one at Swansea?—A harbour at Lundy Island would give the greatest benefit to all the foreign trades, and Swansea to both.

1939. Mr. Hassard.] Do you know whether the great bulk of the coal trade of South Wales is with the south coast of Ireland, or with the ports in the Irish Channel?—I really do not know, but I should think there is as much for France as there is with Ireland, but most with Liverpool.

1940. But it is not with that view I ask the question; is there much coal trade up the Irish Channel?—I should think there was, but I do not know, as to Liverpool I know there is with the Welsh coal a great trade.

1941. You stated that a vessel lying at anchor for refuge at the Mumbles would not go to sea with the wind at north-north-west, because that would be a foul wind in the Irish Channel?—Yes, if bound there; she would start, if bound to the English Channel, in moderate weather.

1942. Would she not be able to lay her course with that wind for the Irish ports if going to the south of Ireland?—North would be a fair wind to go to the south of Ireland, and north would be a fair wind in the Irish Channel if she were bound anywhere south.

1943. But it would be foul to go up the Irish Channel?—It would be right in her teeth.

*Thomas Barnard Chanter, Esq., called in; and Examined.*

T. B. Chanter,  
Esq.

1944. Chairman.] WHAT are you?—Lloyd's Agent and Vice-consul, and Consular Agent at Bideford.

1945. Are you well acquainted with Barnstaple Bay?—I am.

1946. Are you well acquainted with Clovelly Harbour?—Yes, quite well.

1947. Can you state any special casualties that have occurred there?—I can state very many.

1948. For want of an asylum or a harbour above Hartland Point?—During the time I have been Lloyd's agent, and holding the position of Deputy Vice-admiral, and Receiver of Wreck, I have seen numerous cases of shipwreck, and I have seen extraordinary escapes from vessels having got within the horns of Barnstaple Bay, but in particular I have seen ships bound from Liverpool to the westward, lost in that bay, or I would rather say, I have seen a ship lately; I have seen a ship from the West Indies to Bristol, homeward-bound, with cargo, lost in that bay. I have seen a ship (a Russian ship) from Dublin, lost in that bay, from the impracticability and impossibility of getting refuge or getting into the English Channel, and an homeward-bound East Indiaman, with a valuable cargo, totally lost.

1949. Then, from your experience, as agent to Lloyd's, you know that the losses are numerous in that immediate neighbourhood?—They are very numerous.

1950. What is the limit of the pilot ground in the Bristol Channel?—The limit of the pilot ground is Lundy Island for the Bristol Channel, where the pilots generally have a small smack; that is the Bristol pilots' rendezvous; there they leave outward-bound ships and take homeward-bound ships.

1951. Are there objections to vessels returning to King Road, if overtaken by adverse gales, to the west of Lundy Island?—There is very great danger without pilots, and difficulty, and, of course, very great objection, from the distance.

1952. Can you give the Committee any information as to the amount of tonnage exposed, and the amount of property and life imperilled in that particular place?—From statistics and returns with which I have been furnished from the Board of Trade and from other places, but from the Board of Trade in particular, as being correct vouchers, there appears to be about 65,000 vessels, 989,275 sailors' lives imperilled traversing the Bristol Channel westward. There is a tonnage of 4,946,176 in one year from the Board of Trade statistics, and a shipment of 3,362,665 tons of coals only.

1953. Within what limit is that?—From five ports only, namely, Cardiff, Newport, Gloucester, Bristol, and Swansea.

1954. But those are ports all up channel?—All depends upon the safety of the channel after they pass Lundy Island, where they are caught by those extraordinary gales upon going down channel after the pilot has left them; the wind comes up from southward and south-west, by-and-bye it comes round from

west

west to north-north-west, and then there is no safety; and in consequence of the extraordinary current which you see on the Admiralty chart, there is a great current driving in round this bay, so that if you see a vessel in a storm off Hartland, lying up as if she would weather Mort Point, the current drives her to leeward, and she gets ashore, and is generally lost in Barnstaple Bay.

1955. Are you of opinion that most of those losses would be averted if you had a harbour made at Clovelly?—Certainly, near Hartland Point. I think Hartland Point is a promontory, central, and that Lundy Island is the key to some very good harbour that can be made there. We have had some authorities who have reported on it; Captain Denham, Captain Washington, Captain Vetch, and Captain Moorsom have spoken to it.

1956. Which point do you consider would be the most important?—I think Clovelly.

1957. Are you able to speak to the cost of constructing a harbour at Clovelly?—I understand from the engineer's report that a breakwater of one mile in length would cost 77,000 *l*.

1958. Upon what authority do you state that?—I state it from the report of Mr. Page, the engineer of Westminster Bridge, who has been there upon a visit; but I should qualify that with reference to the owner of property there, Sir James Williams, who, in consequence of a great loss of life in the same place, (40 or 50 fishing-boats, and, I think, 100 men), though he had come to the determination to keep the ground private for his own convenience, and has objected to the improvements for many years, has now given authority to state his unqualified approval of Clovelly; I believe he will give the materials from his property for it if it can be made useful.

1959. Has there been any separate estimate made with reference to the improvement which would be sufficient for the coasting trade alone?—It was thought, if nothing else could be done, in consequence of the loss of these fishermen some effort ought to be made; it is a large shipping place, and if a gale comes on very suddenly they are all lost, boats and all, as Captain Claxton said.

1960. What is the depth of water within this bay?—From six to ten fathoms.

1961. That would be sufficient?—That would be sufficient for the larger work; there would be about three fathoms for the smaller one.

1962. Have you any further observations to make with reference to Clovelly?—I would merely take leave to refer the Committee to the track of the ships inward and outward bound, from that chart corrected by the Admiralty, to show their entrance to, and departure from the Channel; the object is to show you that for ships from the Irish Sea, as well as from the Bristol Channel, this spot is eminently calculated for shelter for the one channel as well as for the other.

1963. Mr. *Augustus Smith*.] What depth of water would you have within the pier by the larger plan?—Ten fathoms.

1964. What number of vessels could be sheltered within the area?—From 60 to 70 I should say, or probably more, and an excellent outlet after a gale.

*Thomas Robert Winder, Esq.*, called in; and Examined.

1965. YOU are a Civil Engineer by profession?—I am.

1966. Where have you chiefly practised?—I am practising now in Dover and Rye.

1967. In what capacity are you in Dover?—I am carrying out the breakwater there.

1968. Are you employed by the Admiralty?—I am employed by the contractors.

1969. Who are the contractors?—Messrs. Henry Lee & Son.

1970. Then you are not employed by the engineer?—I am not.

1971. But by the contractors?—By the contractors; I am engineer to the Rye Harbour Commission.

1972. Has your attention been called to the character of the navigation in the neighbourhood of Dover and Rye, and the neighbouring ports?—It has.

1973. Is that a dangerous navigation?—I am not able to express an opinion in a nautical point of view; I am the engineer to the Rye Commission.

1974. Are there many losses upon that coast?—Not that I am aware of.

1975. Is there any necessity for a harbour of refuge upon that coast more than

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*T. B. Chanter,*  
Esq.

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*T. R. Winder,*  
Esq.

*T. R. Winder,*  
Esq.

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is already being either made or at present exists?—I think that the harbour at Rye might be made a useful place to vessels passing that coast.

1976. Apart altogether from local considerations, and bearing in mind solely the public and imperial considerations, and the navigation of those seas, just state to the Committee what you think to be the advantage of making a harbour at Rye?—I think that Rye Harbour would become a very convenient place for a coaling depôt for steam vessels in time of war.

1977. Be pleased to bear in mind that we do not wish for any evidence before this Committee with reference to commercial conveniences such as coal-ing; all that we require is evidence with reference to security against dangers at sea. What is there in the harbour of Rye that would be essential for the navigation of those seas altogether apart from the harbour itself that should induce the expenditure of public money at that spot?—Supposing Dover break-water completed, I could not recommend a large expenditure at Rye; but as there is no place for vessels to run into along 60 or 70 miles of coast to the west-wards of Dover, or I may say between Dover and Portsmouth, but Rye, and as vessels get embayed there in southerly gales, I think the pier now being carried out there would, if extended, be a very great convenience, and save from wreck many vessels, and would be well worth the expenditure of a small sum of public money.

1978. If a vessel is caught by a gale in the Channel, are there not other places that she would run to in preference to Rye?—I think there might be, if she was not already embayed there.

1979. With a south-west gale, would a vessel run for Dover?—I think a vessel would run at present for the Downs, but for Dover when the breakwater was completed.

1980. The Downs affords shelter?—Yes.

1981. She would not think of running for Rye?—I think not, because she would run upon a lee shore; but being there, she would try for the entrance to the harbour at high water.

1982. With a north-east gale, would Rye be of any use to a vessel coming from London or from the Downs?—I think not more than any other part of the coast, because the wind would be right off the land, and the whole coast would afford shelter.

1983. In what case would Rye be of use to a vessel to go to?—I think that Rye might not be made useful as a place of refuge, so much as a convenient place for coaling and victualling in time of war.

1984. *Sir Frederick Smith.*] Are you acquainted with the narrow part of the Channel?—With Dover.

1985. You say there is no place between Portsmouth and Dover except Rye; do you know Newhaven and Shoreham as harbours of refuge for small vessels?—I know there are harbours there.

1986. They would give shelter, would they not?—Yes, they would to vessels which had rounded, or could round Beachy Head from off Rye.

1987. As good as Rye?—As good as Rye.

1988. *Mr. Augustus Smith.*] Are you the engineer at Dover?—I am not the engineer at Dover; I am carrying out the works at Dover.

1989. You are superintending the works there?—I am.

1990. What is the effect of the breakwater now being thrown out as regards the shingle that comes along the shore from the west?—It has now no effect upon the shingle whatever.

1991. What do you mean by "has had no effect"?—Since the breakwater has been commenced, the shingle has been intercepted elsewhere; there is now a dearth of shingle there.

1992. In fact, the shingle was of importance to you for carrying on the works?—It was.

1993. Where is it stopped now?—It is stopped at Folkestone.

1994. By the pier?—By the pier.

1995. Has not the sea-shore on the east side of Folkestone Harbour become endangered through the non-accumulation of shingle?—The South-Eastern Railway Company's Works have suffered.

1996. Are they on the east side?—They are on the east side of Folkestone.

1997. There is no accumulation now of shingle as formerly between the piers entering into the old harbour of Dover?—No.

1998. And

1998. And no accumulation upon the banks towards the east part of Dover ?  
—None, or but very little.

1999. That is in consequence of its having been stopped along the coast to the westward ?—To the westward.

2000. Mr. *Baring*.] You mentioned that there was no harbour of refuge for ships between Dover and Portsmouth?—I mentioned that there was no harbour or shelter near to Dover except Rye; taking the whole coast, Newhaven would afford a place of shelter.

2001. Newhaven is a tidal harbour, and cannot be entered except at high tide ?—No.

2002. Consequently you cannot consider it at present a harbour of refuge ?—Not a harbour of refuge.

2003. Are you aware that the Commission of 1844 recommended the establishment of a harbour of refuge at Seaford ?—I am.

2004. That would be nearly half-way between Dover and Portsmouth ?—It would.

2005. Have you any personal knowledge of Newhaven or of Seaford ?—I have not.

2006. *Chairman*.] Have you any further observations to make to the Committee?—The Rye Harbour Commission have a very great difficulty in keeping their harbour open, which is a very useful harbour indeed; nationally it would be, inasmuch as in time of war it would be the most convenient place to get into between Portsmouth and Dover for the purposes of coaling and victualling; it is also the best opening to the large military canal which was cut there some time ago for defensive purposes. There is a considerable import and export trade there at present, and the Commissioners have commenced to carry out a work to keep the harbour open, but the shingle accumulates there so fast that their means are not equal to the expenditure upon the work necessary to keep it open. They think the Government might grant some little aid towards the carrying out of the work, and they have wished to gain a hearing before this Committee, under the impression that it would take into consideration the keeping the harbour open under the difficult circumstances in which they are placed.

2007. This is a Harbour of Refuge Committee, and not for harbours for coaling purposes; we cannot take evidence upon that point?—It is thought by the Commission that that harbour would be exceedingly useful, nationally, in time of war.

2008. Is there such a thing known as vessels taking refuge in Rye Harbour ?—Vessels frequently do so in the bay. In a strong easterly gale 100 vessels may be seen under the eastern horn of the bay.

2009. But there is no such thing as vessels entering Rye Harbour to take refuge which do not otherwise want to go into the harbour ?—Very rarely so; and those are small vessels, French vessels.

*James Abernethy, Esq.*, called in; and Examined.

*James Abernethy,*  
*Esq.*

2010. *Chairman*.] ARE you an engineer employed by the Government ?—I am.

2011. In what service are you now employed ?—I have been employed for the last nine or ten years under the Preliminary Inquiries Act by the Admiralty, in examining and reporting upon various harbours on various parts of the coast; and I have constructed, and am at present engaged in constructing, the works of various harbours.

2012. On behalf of the Admiralty ?—On behalf of companies and for the trustees of various ports.

2013. But are you employed by the Admiralty ?—I am.

2014. In what capacity ?—As a surveying officer from time to time under the Preliminary Inquiries Act, in examining and reporting upon schemes for the improvement of various harbours.

2015. But the harbours you are making are on behalf of public companies or private bodies ?—Yes.

2016. Do you know the Mumbles ?—I do.

2017. Do you know what the capabilities are which it offers for a harbour of refuge ?—I do.

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2018. Is it your opinion that they are great?—It is my opinion that the Mumbles is the most important point for a harbour of refuge, on the Welsh shore, of the Bristol Channel. It is unquestionably a very favourable site as regards its capabilities, and as regards the nature of the ground, and the facility with which the material could be procured for the formation of the necessary breakwater.

2019. We have had a great deal of evidence as to the position of the Mumbles, and the facility which it affords for vessels outward and homeward bound in the Bristol Channel. What we now require an opinion about is as to the engineering capabilities of the spot; will you therefore speak to the engineering facilities which that position offers for a harbour of refuge, and as to the material and the cost at which it can be done?—If you will allow me, I will put in a chart of the bay (*producing the same*).

2020. Referring to this plan, what are the works that you consider necessary?—The works I consider necessary are those coloured red on the plan.

2021. The two breakwaters?—The two breakwaters.

2022. What are the lengths of those two breakwaters?—Together, 1,760 yards, or a mile.

2023. What is the facility of obtaining material upon that spot?—The Mumbles headland is composed of mountain limestone. At present, an immense quantity of limestone is quarried from that site; that is therefore already available for the construction of a breakwater. In addition to that, there is an immense accumulation by the side of Swansea River of copper slag from the works there, which has a greater specific gravity than the limestone, and is more durable, where exposed to the action of water that can be procured in any required quantity.

2024. Have you calculated the cost of these two breakwaters?—I have.

2025. What would the cost be?—£. 370,000.

2026. I see that you do not connect either of them with the land?—No; the depth of water in the roadstead is preserved, and kept open by the ebbing tide, the direction of which is seen by the arrows on the plan; and in order to preserve the outgoing or ebbing current, I think it necessary to leave an opening between the Mumbles Head and the first breakwater, so as not to interfere with the action of the tide.

2027. Are those fathoms?—Those are fathoms at low-water spring tides.

2028. By leaving an opening between those two breakwaters, and between the larger breakwater and the Head of the Mumbles, that would always keep this clear, and prevent it being filled up?—It would.

2029. That is the object of leaving the opening?—That is the object of leaving an opening between the Mumbles Head and the first breakwater; the other is for the ingress and egress of the shipping.

2030. These two breakwaters would be sufficient in your opinion to make the Mumbles into a very complete harbour of refuge?—Those two breakwaters would afford shelter of 200 acres area, with a depth of four fathoms at low-water of spring tides, sheltered from the action of all winds.

2031. Admiral *Duncombe*.] Then is it your opinion that these works carried out would form a harbour of refuge in a national point of view, or merely for the coasting trade?—For the whole of the Bristol Channel; I have no doubt it would form a harbour of refuge for the great majority of the ships navigating the Bristol Channel, not only coasters, but larger ships in the trade.

2032. For the purposes of all vessels using the Bristol Channel, not only coasters but foreign vessels, it would form a harbour of refuge?—I think it would.

2033. And that for an expenditure of 370,000*l.*?—Yes.

2034. Mr. *Hassard*.] Is there no objection to using limestone as the material for a breakwater?—There is no objection to using limestone; I prefer the copper slag, because I can procure it at a much more moderate expense than the limestone, and I consider it more durable.

2035. We have had evidence from a former witness that the limestone is exposed to the action of the worms?—Yes.

2036. Is the limestone at Swansea Bay of that nature?—No, not in Swansea Bay; we do not find the action of the worms there affect it at all.

2037. Mr. *Philips*.] In what engineering way would you construct the breakwater?—I think it necessary in explanation of the estimate which I have given in,

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in, to enter a little into detail as to the construction of the breakwater. The present mode of constructing a breakwater is by the formation of a large rubble mound, to the depth of 12 feet, or thereabouts, below low water-mark, and upon that to build a superstructure of masonry; that mode of construction involves a great expenditure of material and time, and consequently of money. I have lately constructed a breakwater upon the coast of Northumberland at a place called Blyth, 4,000 feet in length, at an expense of 28,000 £., which has stood the test of two severe winters without suffering the slightest injury. That breakwater is composed chiefly of rubble work encased within a framework of creosoted timber. In the formation of a breakwater at the Mumbles, I propose to pursue a similar course; to form a mound of copper slag to the level of low-water mark and upon that to construct as I have done at the Port of Blyth—timber frame formed of creosoted timber, filled in with copper slag and Aberthaw lime combined. The advantages which that mode of construction afford are, in the first place, that the breakwater may be carried out in a short period of time, which I consider a most important object, and at very much less cost than the mode generally pursued; and it would form a nucleus or the means of carrying out, should it be found necessary at any future period, a much more permanent and extensive structure, but it would afford in the first place the necessary protection to the shipping at a moderate cost and in a shorter period of time.

2038. *Mr. Hewett.*] How long does the creosoted timber work last?—I am convinced that timber when creosoted is not subject to the action of the worm as far as my actual observation goes; and in that case probably I am understating it when I say it would last half a century at least. I should explain further, that at present, in the formation of a breakwater, a large quantity of timber is consumed in the construction of the necessary staging for the simple purpose of depositing the material. I apply the timber so consumed in the formation of a staging for depositing the material, and at the same time to protect the material during the construction of the work, and to prevent the sea from breaching it by storm.

2039. Do you carry the creosoted frame quite to the bottom?—Quite to the bottom.

2040. *Mr. Augustus Smith.*] Is the building of this timber frame necessary to hold the concreted blocks together, or would they amalgamate in time?—In time they would amalgamate.

2041. Then they would eventually be able to stand by themselves if the timber were to decay?—Yes, after the timber is decayed.

2042. *Mr. Philips.*] You consider the supplies of copper slag to be unlimited?—Yes.

2043. The Aberthaw lime which you have spoken of is largely exported, I believe?—It is.

2044. That is found in the immediate neighbourhood of this place?—That is in the immediate neighbourhood.

2045. *Lord John Hay.*] To what depth should you carry the frame-work out; I suppose there is a limit to the depth to which you could employ that mode of structure?—No, I could employ it to any required depth.

2046. *Chairman.*] Is your plan a substitution for the plan adopted by Mr. Rendel?—It differs in so far, that I apply the timber work which is consumed in the mere deposition of the material at Holyhead for the work for two purposes, first, for depositing the necessary material, and, secondly, for protecting that material from the action of the sea.

2047. Then you would form it into a stage as well as into the framework?—I should make it form a stage as well as the framework.

2048. By putting it into a frame you would save a considerable quantity of rubble that would otherwise have to be thrown down?—A very large quantity; I could do it with one-third the quantity of material.

2049. You mean that the material would not spread so much at the base by being confined by the timber?—It would not spread so much at the base by being confined by the timber.

2050. You would combine it more into the space of a wall?—More into the space of a wall.

2051. Therefore a great deal of material which is now lost by being spread out and dissipated at the base by being thrown down would be confined by your framework?—It would.

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2052. That model which you have before you is a specimen of the framework which you use?—Yes, at Blyth.

2053. I see that one part is almost perpendicular?—Yes; that is the land side of the breakwater, and the other is the sea side.

2054. For that work, is it not the case that you must use a very great deal more timber than you do when you only want a temporary stage?—I should use less timber in the construction of the breakwater at the Mumbles than would be used in the ordinary mode of constructing a similar breakwater.

2055. For the stage only?—For the stage only.

2056. You say that you have already constructed a pier of that kind at Blyth?—I have constructed a pier at Blyth 4,000 feet in length within the period of two years at the cost of 28,000*l*.

2057. What depth of water is there at Blyth?—There is only two feet at low water of spring tide; the whole height of the breakwater is 20 feet. Where a breakwater is exposed to the greatest action of the sea is between the level of low and high water; the same arrangement can be carried out to any required depth.

2058. Have you ever made the experiment in deep water?—I have not; but I have no doubt of its success.

2059. I think that at the Mumbles there are about six fathoms water inside and nine fathoms outside?—Yes.

2060. What is the comparative cost of a breakwater on your plan of construction, and on Mr. Rendel's plan of construction?—I should say that one-half of the cost would be saved, but certainly not one-fifth part of the time would be required. That, I think, is a most important element in carrying out a work of that sort.

2061. What means would you take, in nine fathoms of water, of getting your structure so fastened as to hold your material?—I made a sketch of it this morning, which I will show you (*producing the same*); I should propose to construct a rubble mound; the first process is to drive those piles thus, and then to fill on this part with copper slag up to the level of low-water mark.

2062. Then, so much of it up to the level of low water mark is beyond your framework?—Beyond my framework; the tide at Swansea rises in springs as much as 38 feet between low-water mark and high water; this framework is fitted together on the shore, and taken out to the site, and secured, and afterwards loaded with the copper slag.

2063. Those are merely the ties, I suppose?—Yes.

2064. Then your plan differs from Mr. Rendel's in so far as the portion above low-water mark is concerned, and below low-water mark you are obliged to resort to the same plan as he does?—In the case of the Mumbles I have done so, and I made a design for a breakwater at Wick, and submitted it to the Admiralty, and it was examined, and approved of. By that plan I confined the mass of stone down to the very bottom of the sea; but in this case I found this would be the most economical mode of carrying it out, having a large quantity of copper slag at command.

2065. Mr. Hewett.] Supposing this outside framework was to get rotten, is there any fear of its tumbling out?—No.

2066. Chairman.] In the course of time the work becomes so consolidated by its own weight, as to be able to stand of its own accord, even if the timber gave way?—Yes.

2067. Mr. Clay.] By keeping your framework as a permanent protection to the breakwater, as long as the timber remains sound, are you able to use any stuff in the construction of the breakwater that you could not use otherwise?—I am enabled to use material which I could not use otherwise.

2068. Sir Frederick Smith.] What is the length of your piles?—The first piles are about 50 feet in length.

2069. Chairman.] Would that be sufficient for the depth at the Mumbles?—It would.

2070. Has copper slag been used for a breakwater already anywhere else?—At the mouth of the Neath River there is a breakwater or guiding walls for a length extending a considerable distance seaward, which has been formed of copper slag without any protection at all.

2071. Therefore the experiment has already been tried?—It has been tried.



Rear-Admiral Sir *Henry Shiffner*, called in ; and Examined.

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2072. *Chairman.*] YOU have had a great deal of experience in the Channel, I think?—I have.

2073. Also in the north seas?—Not much in the north seas.

2074. But in the English Channel a great deal?—In the English Channel very considerable experience.

2075. And you know it well?—I know the greater part of it well.

2076. Have you any suggestions that you would wish to make to this Committee, having a view to harbours of refuge for the security of shipping in the Channel?—Yes ; I should recommend Seaford Bay as a locality where a harbour of refuge is much wanted, between the Land's End and the Downs. For some years I have taken considerable interest in the question of harbours of refuge in the Channel, and placed before Sir Byam Martin's Commission (1844) my views respecting one in a central position between Portsmouth and the Downs. I have the satisfaction of knowing that the situation I recommended was so far countenanced and sanctioned by that Commission, that it was recommended for adoption. Perhaps the Committee will allow me to read an abstract from the report I left with Sir Byam Martin's Commission, and at an earlier period sent to the Admiralty. (*Abstract put in.*) Living within 8 or 10 miles of Newhaven, my attention has been directed to that harbour and its roadstead, Seaford Bay, which, being exactly midway between the Downs and Portsmouth, I think is, considering its geographical position, most fit for a harbour of refuge, and offers great facility for constructing one. Newhaven Harbour can never, from want of depth of water, admit large vessels at all times of tide, and consequently can never be made a harbour of refuge. Seaford Bay has the best holding ground in any port of the south coast, a stiff blue clay. If the Committee will kindly permit me, I will read such part of the report of Sir Byam Martin's Commission as refers to Seaford Bay and Newhaven Harbour: "We have now to draw your Lordships' attention to the bay on the east side of Beachy Head, and westward of Langhey Point, which the Commission of 1840, that is Sir James Gordon, proposed as a site for a breakwater. The shoals called the Royal Sovereign, and others, as laid down in the Admiralty Charts, first attracted our notice with reference to this work ; it was therefore thought desirable to have a more detailed and extended examination of the bay by the surveying vessel placed at our disposal by the Admiralty. The result has been the discovery of several other patches of shoal water, as shown on the accompanying chart, and our previous impression as to the hazard of placing a harbour of refuge in such a situation has been so strengthened, that we decided to look for a more eligible one on the west side of the Head. There is no inner harbour or opening along the coast on the east side of Beachy Head. On the west side of Beachy Head the anchorage is free from the dangers which render the east side less eligible as a place for constructing a harbour of refuge. The holding ground off Seaford is of the best quality, and is much resorted to in easterly gales." I have myself seen 40 or 50 vessels at anchor there, taking shelter in easterly gales ; and I believe there have been frequently known as many as 100. "The Commission is of opinion that there is no position in the neighbourhood of Beachy Head where a harbour is as necessary as in any part of the Channel, being about half way between Portsmouth and Dover, except in Seaford Road, and the accompanying chart shows the place where a breakwater may be constructed with great advantage to the trade, and as a station for armed vessels." The position of the breakwater is about a mile east of the entrance of the harbour of Newhaven, or a short mile—perhaps I may say not more than half a mile. "The Commission are fully aware of the objections which may be made to the formation of a breakwater harbour on the west side of Beachy Head, considering the presence of westerly winds ; but the local disadvantages on the east side of the Head, induced them to give a decided preference to the west side, and the proximity of Newhaven has materially influenced their decision." A Woolwich pilot, by the name of Stuart, gives very strong evidence upon the point ; he was a pilot serving very much in men-of-war, and he was for some years employed in the Channel as a pilot. He speaks most strongly of the position of Seaford Bay as being in fact the only fit place between the two points of Portsmouth and Dover as a harbour of refuge.

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2077. I do



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2077. I do not observe by the chart that many losses have taken place in the immediate locality; it does not appear to be a part of the coast much exposed to danger?—I do not know that there have been a great number of wrecks; I cannot say that there have, but I think if you take the whole southern coast, it will be different; I have a statement here of the vessels; I have looked very carefully over the wreck chart, and I cannot say I quite think that that is very conclusive as to the number of wrecks placed upon it; for instance, a few years ago, there were two vessels wrecked upon the coast of France, and I believe the loss between the two involved about 200 persons; such wrecks would not, I believe, appear on the Wreck Chart.

2078. Was not it the fact that they mistook the lights in that case?—No; I believe not; I believe it was chiefly in consequence of the sudden shift of the wind; they were driven in by a very heavy south-west gale; the south-west gale subsided into a wind blowing strong from the north-west, in very heavy gusts, and that drove them on the shore; nineteen gales out of twenty from the south; west shift suddenly to the north-west.

2079. If I understand the object of your evidence, it is, that if it should be thought necessary to erect a harbour of refuge on the south coast, then the spot you have indicated is the one you would most recommend?—Certainly, I would urge the necessity, from the immense length of coast without any shelter whatever; if I take the distance from Portsmouth to the Downs, I take a distance of 120 miles without a single harbour that a vessel can get into of any size. The whole coast is unprotected; it is not only required for the shelter of merchant vessels, but in the event of war there is nothing whatever for ships to take shelter in, either men-of-war or merchant vessels; it is perhaps the most exposed part of the Channel. It approaches more nearly to the coast of France, and it is a part of the Channel where, in the late war, there were swarms of privateers.

2080. The prevailing winds are south-west in the Channel?—Yes.

2081. With a south-west wind a vessel could run in to the Downs, could she not, going up Channel?—Yes; but I imagine a great number would put into a harbour of refuge in Seaford Bay, if you were to make them a safe anchorage there.

2082. When running down Channel, with a north-east wind, they could run for Portsmouth, could they not?—They could, with a north-east wind; but if they were caught off the Ower, which is frequently the case as far down as that, with a south-west gale, they would then be enabled, instead of running back to the Downs, to put into Seaford Bay.

2083. But the more dangerous gales are the south-east and the north-west?—No; I should say the south-west is the most prevailing wind; but the south-south-east winds in the Channel are by far the most dangerous.

2084. Admiral *Duncombe*.] Do you reside near Seaford?—Within about eight miles.

2085. Is it not the case that a great number of wrecks shown off that part of the coast are caused by collisions, rather than by coming on shore?—A great many off Beachy Head may be. I have a list of wrecks upon the different parts of the coast.

2086. Then I apprehend your evidence is to the effect that you think that a harbour of refuge is advisable between Dover and Portsmouth, inasmuch as they are about 120 miles apart, which you think is too great a space of the coast without some refuge?—Certainly; for a ship leaving Spithead in the morning cannot, without spending a night at sea, in the winter, reach another anchorage. A harbour of refuge in Seaford Bay in such a case would be of great value in bad weather.

2087. Is not it the case, from your knowledge of the North Sea, that that is nothing to the distance on the north-east coast of England and Scotland, without any refuge harbour at all?—It is; and I have no hesitation in saying that, on the north-east coast of England, it is necessary there should be a harbour of refuge, particularly in the locality of the Tees; but that does not make it the less desirable that there should be a harbour of refuge at Seaford Bay.

2088. But in a national point of view, looking to the safety of life and property, and considering also that the expenditure of the country must be limited to a certain extent, do you think a harbour of refuge upon the north-east coast of England would be the most important in the first instance, rather than a harbour of

of refuge in Seaford Bay?—I think not, for this reason. If we were at war with France, that would be a point of the Channel where we should sustain immense losses. Rear-Admiral  
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2089. You are looking now to the national defences of the coast rather than to a harbour of refuge?—I look at both. 22 March 1858.

2090. You are, doubtless, aware that on the north-east coast of England and Scotland the wrecks are a hundred to one as compared with those on the south-east coast?—I do not think so.

2091. Then, perhaps, you do not set much value upon the wreck chart?—I do not think it is of much value, though made by a friend of mine, as bearing upon the necessity of a safe anchorage in Seaford Bay. If you will give me leave to read some returns I shall be glad to do so; here is a table showing the total number of lives lost by shipwreck in the year 1852 to 1856 inclusive, and the number of lives lost in each of those years off the southern coast of England; it is taken from the Admiralty Register for the years 1852, 1853, 1854, and the Board of Trade Register for 1855 and 1856. Of the total loss upon the whole coast of England in 1852 on the south coast, there were 255 out of 920, which is 28 per cent. In 1853 there were 689 lives lost, and 106 upon the south coast: that is 15 per cent.; in 1854 there were 1,549 lives lost altogether, and 316 upon the south coast: that is 20 per cent.; in 1855 there were 449 altogether, and 236 on the southern coast: that is 50 per cent.; in 1856 there were 521 altogether, of which 214 were upon the southern coast: that is 41 per cent. Those are heavy losses, and those are all upon the south coast, and I must suggest this to the Committee, that those losses would not contain the losses in the Channel on the coast of France.

2092. What do you regard there as the south coast; within what limits is the south coast?—From Scilly to the North Foreland.

2093. That return would include vessels run down in the Channel and some of the Dover packets, which unfortunately have been lost with all hands?—Perhaps it may be so; this Return was sent to me; I have another Return, which is a table showing the loss of life by shipwreck off the southern coasts in each of the years 1852 to 1856 inclusive, and the loss of life between Berwick and the Thames in each of the same years.

2094. *Chairman.*] Upon what authority are these tables made?—These are taken from the Admiralty Register for the years 1852, 1853, and 1854, and from the Board of Trade Registers for the years 1855 and 1856.

2095. You said they were sent to you; did you take them out yourself, or have they been handed to you?—They have been handed to me. Upon the south coast, in 1852, there were 255 losses, and 201 between Berwick and the Thames; and in 1853 on the south coast there were 106, and from the Thames to Berwick inclusive, 136. In the year 1854 there were 316 on the south coast, and 236 from Berwick to the Thames inclusive. In 1855 there were 236 on the south coast, and 68 between Berwick and the Thames. In 1856 there were 214 on the south coast, and 78 from Berwick to the Thames, making a total of 1,127 upon the south coast against 719 from Berwick to the Thames inclusive.

2096. *Mr. Augustus Smith.*] If a harbour of refuge were to be made in Seaford Bay, where would you propose to place your breakwater?—What I suggested in the first instance is one which was subsequently recommended by Sir Byam Martin's Commission, that is off Seaford, the bay then had not been so closely surveyed as it has been since. The reason of placing it so far to the eastward off Seaford was under the impression that the best holding-ground was to be found there, but subsequent surveys and soundings have shown that the good holding-ground, stiff blue clay, approaches close to the harbour's mouth.

2097. In what harbour's mouth?—Newhaven Harbour; and therefore there is no reason now why it should not be drawn farther to Newhaven.

2098. So as to include Newhaven?—Yes. Mr. Scamp, Deputy Director of engineering works of the Admiralty, was, in 1852, sent down to survey and report upon a harbour of refuge in Seaford Bay. It was considered by the Admiralty of the day so important a position as to render such a course advisable.

2099. Mr. Scamp is not a naval man?—No, he is not a naval man.

2100. And has very little knowledge of nautical matters I believe?—I do not know much of Mr. Scamp; he is attached to the Admiralty Department in Somerset House; he is Deputy Director of engineering works; he has made a

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plan for a harbour of refuge in Seaford Bay, which includes the harbour of Newhaven, and has reported upon it to the Admiralty. I think the Committee, if I might suggest it without presumption, would do well to call for that report, and examine Mr. Scamp upon it.

2101. What extent of area should you get with your proposed breakwater?—You might get any extent that was desired in Seaford Bay; if you inclosed the bay it would hold a very large fleet. I think the breakwater which Sir Byam Martin recommends, is nearly a mile in length.

2102. Have you any idea of the cost?—The cost calculated in the report of Sir Byam Martin's commission was 1,250,000*l*.

2103. For that one harbour?—For that one harbour. I forget what the others were, but I understand that the harbour recommended by Mr. Scamp, and which is made, perhaps, on a much better plan than that recommended by the Harbour Commission, would be very considerably less, for the immediate neighbourhood of Seaford affords material for constructing a breakwater, and the hill overhanging Newhaven Harbour might be used for the purpose. It is a very hard chalk, there is a great deal of it being used to back up the groyne, not breakwater, now at the entrance of Newhaven. It is there in large blocks from eight to ten tons each; it has been there to my knowledge from eight to ten years, and has not wasted the least.

2104. Is it not the fact, that part of the chalk was blown down by the engineers some ten years ago?—That was at Seaford Head.

2105. Is it not the fact, that the whole of that stuff, or nearly the whole, has been washed away?—Nearly the whole is washed away; it is an experiment which has failed.

2106. Is the material which you propose to use different from that?—Very materially different; it is a hard chalk, and there is sandstone over it; there is very firm sandstone over the chalk.

2107. In any great quantity?—That I cannot say.

2108. Not enough to make that breakwater?—I cannot say; I imagine not; but there is another material which you can get there; you can make concrete to any extent, for the formation of which there is nothing wanting; concrete has been used in many places to a very great extent. I believe the French, in the construction of a breakwater at Algiers, have used nothing but concrete; large blocks of concrete made for the purpose. Mr. Walker has seen the concrete formed at Newhaven, which is not very expensive, and might answer remarkably well for the purpose of a breakwater.

2109. *Chairman.*] Have you any other observation which you wish to make to the Committee?—There was a report made by the commissioners of the harbour in January 1848 to the Government, and the Government referred it to the harbour and railway department; here is a report upon it by Captain Washington and Colonel Vetch as to the scheme for improving Newhaven, for Government purposes; I should look to the harbour in Seaford Bay as a harbour of refuge and the harbour within it as a harbour of refit; I think it would stand very much in the position of Spithead and Portsmouth Harbour, ships of any size whatever might anchor in the harbour of refuge; you might get six or seven fathoms water there without going far to seaward; you would have the harbour of Newhaven within it where ships might be repaired. There is a large space for excavating a basin, where gun-boats might lie in all times of tide, and it would do to repair ships, and dry docks might be constructed there with great ease.

2110. Those are very valuable objects but they are not the objects of this Committee?—I am only anxious to point out that which I think, and which has been thought by all commissions, one of the most important spots for a harbour of refuge in the kingdom. If we were to go to war with France, there is no point in that coast for steamers, and there is nothing for the protection of ships there, or for the protection of the trade of the country; if they are blown off, and if the weather comes on heavy they might get shelter in that harbour of refuge, and it would be a most valuable position for the trade of the country. Looking at the Channel, and to ships passing up and down, the largest portion of the trade of the country would be exposed to attack from the French privateers which used to swarm there in the last war; they have been seen there in numbers, have even taken vessels from convoys passing up and down; it is a part of the coast where there is no shelter and no convenience for ships to anchor; I would state also that Brighton, which is within six miles, is a town exposed to attacks and

and bombardments from gun-boats, and if there was a harbour of refuge at Seaford, and Newhaven were improved, it would be the greatest possible protection to that town; assistance would be always at hand.

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2111. Lord *John Hay*.] I understand you to state that you think there is a great deal of requirement for a harbour of refuge on the south coast, and that you think the claims of that coast are superior to the claims of the north-east coast of England?—Not quite that; I said that in case of war, most assuredly, from its being more open to attack than any part of the coast of England, it is of great importance.

2112. Then in stating your views of the superiority of the claims of the south-west coast over the north-east coast of England, you are looking more to the point of national purposes than anything else?—More in a military point of view.

2113. Are you aware that Captain Washington stated to the Committee last year, that he thought the national purposes were amply supplied by the works in creation, or finished, at Portland or at Dover?—No, I am not. He was a member of Sir Byam Martin's Commission, which most strongly recommended Seaford, where the expenditure was stated to be 1,250,000*l*.

2114. Are you aware that Captain Washington stated that there was no requirement for an increase of harbours of refuge on the south coast?—Yes, I have seen it, and it surprised me, because it was in direct opposition to his statement as to the want of a harbour of refuge in Seaford Bay as stated by Sir Byam Martin's Commission, of which he was a member.

Mr. *Thomas Lowery*, called in; and Examined.

2115. *Chairman*.] WHAT are you?—A Trinity-house Pilot.

2116. Are you in the habit of taking ships up and down the Channel?—Yes.

Mr.  
*Thomas Lowery*.

2117. Have you any observations to make to this Committee, as to the danger of the navigation of the Channel?—None particularly, that I am aware of. I was summoned up here as to the north-east coast. I am a pilot in the English Channel.

2118. Mr. *Augustus Smith*.] What are your limits?—My limits extend to the whole of the North Sea and the English Channel, under the Admiralty and the Trinity House.

2119. *Chairman*] Are you aware of any want of a harbour of refuge in the Channel at present?—Since the Harbour of Portland has been formed, I think it has filled up that great want which did exist between Plymouth and the Isle of Wight formerly.

2120. Since Portland Breakwater has been erected, you think that nothing more is wanted there?—I think not.

2121. Do you think there is any great want of a harbour of refuge higher up the Channel?—I have never seen the use of one; for example, ships coming up Channel invariably make the Isle of Wight or Beachy Head; and if they do so with the prevailing gales, the south-west wind, they can work up to the Downs; and the great object is, to prepare a roadstead or a fit place for the great amount of ships that arrive in the Downs; now, in the Downs, we have no safety.

2122. Then it is in the Downs that you think there is a want of safety?—Yes, where one of the greatest and grandest harbours in England could be constructed.

2123. Within what part of the Downs?—Within the limits of the Brake, extending nearly five miles.

2124. Will the Dover works do nothing for that?—I cannot see how they ever will for the big ships; the great object in the Channel, at the present hour, is this: ships, navigating the Channel, of a small draught of water, the coasters, can run into the tidal harbours; but large ships navigating the Channel must have harbours of a spacious size to enter, and we have not one, but Spithead or Portland, till we come to the Downs. The Downs is the only roadstead, and it is sheltered nowhere from the south-west point up to the south-south-east point.

2125. What would be the nature of the harbour to be made there?—It would be more in the nature of a breakwater running upon the parallel Brake, which is a large piece of sand, or rather chalk covered with sand. Nature itself has already made the principal part of it, and all that part is principally dry at low water; the north-east part of it in several parts is dry at low water.

2126. Have you reason to believe that it is sufficiently firm to afford a bottom

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for the works?—It is a solid block of chalk, only on the south end where the sand accumulated, we had to shift our buoys in a few instances, and you see if they had a breakwater, that breakwater upon the bank would run parallel to the land, which is a distance of nearly a mile and a quarter from the land, giving a space for nearly two and a half miles of not less than five fathoms water at low water; any ship, a line-of-battle ship could either beat in, or run in there.

2127. Then there is a part now of the Channel between that and the main land which would be secured from the danger of the sea by a breakwater?—Quite so, simply by running the breakwater at right angles towards the shore.

2128. And within that breakwater there would be plenty of water both in length and depth for large ships?—Yes, for the whole of the ships belonging to the British Empire.

2129. What would be the length?—From the north-break sand buoy, to the south-break sand buoy, from five and a half to six miles. I drew a plan of it myself about 10 years ago, and handed it to some friends of mine in London; some mercantile gentlemen.

2130. Have you any idea of what the cost of that breakwater would be?—Not at all.

2131. You do not express an opinion upon that?—Not at all. I only show the use it would be to prevent the loss of property. Along that part there are thousands of ships arriving in the Downs from London, and thousands arriving from all parts of the world into the Downs; they come there from all parts of the North Sea and the Baltic, and lie there because they will not lie in an open exposed place with no shelter whatever.

2132. Admiral *Duncan*.] What you have stated is from your experience as a pilot in navigating ships up and down Channel?—Just so.

2132\*. And your impression is, that for refuge nothing is required between the Isle of Wight and the Downs, provided the anchorage in the Downs was made into a safe roadstead?—A harbour of refuge; there is only a distance of one hundred and odd miles along that line of coast.

2133. You think that the requirements would be better met if anything were done by improving the anchorage in the Downs, than at any intermediate point between that and the Isle of Wight?—There is no doubt of it.

2134. And although you are not prepared to say what the expense of that would be, you have no doubt it must be very large to make it efficient?—I have no doubt of that; but they are fully supplied with blocks of chalk.

2135. When made as you suggest, would that be a perfectly safe anchorage in all winds?—No doubt of it; the east cliff of Ramsgate shelters it from the north-east, and the line of the break would shelter it from the south-east round to the north-east, and the line of the breakwater would take it from the south-south-west.

2136. Have you any experience in the North Sea and in the Baltic trade?—Yes, I have been on both.

2137. Have you been much on the north-east coast?—Yes; I was reared up on that coast.

2138. Are the requirements there for harbours of refuge great?—Very great indeed; in no part of Great Britain are there more or greater losses.

2139. With reference to wrecks on the south coast, are not many of them from collisions off Beachy Head?—I should think that four-fifths of them are; I have been 16 years under the Trinity House, and I never knew but two ships lost upon Beachy Head in my life.

2140. Where the wreck chart shows a loss of several vessels you think those chiefly arise from collisions?—Yes.

2141. Sir *Frederick Smith*.] Are there any other points upon the southern coast where you think a harbour of refuge might be established with advantage?—I cannot see it.

2142. You do not think at Seaford one is necessary?—If I was at Seaford with a ship bound westward my object would be to get to the Isle of Wight, and if the wind came from the south-west, it is within the line of my course; a ship with the wind south-west, unless it blows a very heavy gale, will fetch nearly to the island, unless it is very hard indeed.

2143. What would induce vessels to go to the Downs?—When the wind prevails to the south-west and the west, south-west in a dead wind, if they get near between the Ness and the Varne, and they fail to make the Ness, they, as a matter of course, come to the narrow channel.

2144. Would

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2144. Would not they go into Dover?—If Dover was large enough, they would not go back to the Downs.

2145. Vessels going to the eastward, coming up from the western coast, if they got as far as Dover, and met with an easterly wind, they would not go on to the Downs; they would go into Dover, would they not?—Quite so.

2146. So that in almost any case, if Dover is made sufficiently spacious, it supersedes the necessity of a harbour of refuge in the Downs?—If it is made sufficient, it would.

2147. If Dover be made sufficient, would not that suffice?—Quite so.

2148. Are there any natural harbours along the southern coast that you would recommend to be improved?—I do not know of any; they are all tidal harbours, and it would cost a great deal of money to improve them.

2149. Mr. *Augustus Smith*.] There are a large number of vessels now that always take refuge in the Downs, are there not?—Yes, chiefly the ships that come from the North Sea, and out of the Thames, take refuge there.

2150. Under what winds is it that it is now an unsafe roadstead in the Downs?—Any wind that draws in from the sea, say round from north-north-east to south; in all wind that draws from the land, it is safe enough.

2151. Have you ever seen the plans of the proposed harbour of refuge at Dover?—I have not seen the plans, but I have seen what is carried out at present.

2152. You are not aware, then, of the extent to which it is intended to be carried?—No; I always apprehend in my own experience that a harbour that is built for the refuge of ships ought to be adequate to allow a ship of large magnitude to go into it under canvas, and ride safe at her own anchor; and if it is not fit for that, it is not fit for a harbour of refuge.

2153. Would your plan give sufficient for that?—Yes.

2154. What depth of water?—Sufficient for ships of all magnitude; as there is not less water than from six to four fathoms for a distance of two miles, at low water, spring tides, and then gradually shoalings to Ramsgate Pier, with a constant run of tide, ebb and flow, from the south-west to the north-east entrance.

2155. Are you acquainted with the Yarmouth Road?—I am.

2156. Is there safe anchorage there for ships to lie under all winds?—No.

2157. In what winds is it useful?—From north-east round to east and south-east.

2158. But it is used very much now, is it not?—Constantly, because there is not another.

2159. Even with those winds?—Even with those winds, and so is the Downs the same.

2160. In fact, the anchorage now in the Downs and in the Yarmouth Roads are very similar, are they not?—Very similar; what we call a roadstead, sheltered merely by an elbow of sand.

2161. Are they very heavy seas in the Downs and Yarmouth Roads?—Yes, quite so.

2162. Such as are inconvenient to large ships?—I have seen in the Yarmouth Roads from 10 to 15 sail of 300 tons on the beach on a morning after a gale.

2163. But ships of the larger size would lie there very well?—They might do so, but they ride very heavy; for, as soon as ever the tide rises above the level of the banks, then the sea has a fair breach right into the roadstead.

2164. Have you, in the course of your experience as a pilot acquainted with the Downs, observed any alteration in the sand-banks there?—Very little; it is much about the same as ever.

2165. Have you observed any alteration in the sand banks in the Yarmouth Roads?—Only in one small part that is in one of the old channels, which we used to call the south-east entrance, which is now closed up.

2166. The entrance has gone further south?—Yes.

2167. Within Lowestoff what means are there for vessels to take shelter?—I never was in Lowestoff Harbour; I have been very often round the passage.

2168. That passage is very narrow?—Very narrow; unfit for large vessels. It is not fit for large vessels at all.

*Jovis, 25<sup>o</sup> die Martii, 1858.*

MEMBERS PRESENT.

Mr. Clay.  
Mr. Dodson.  
Admiral Duucombe.  
Sir James Elphinstone.  
Mr. Joseph Ewart.  
Mr. J. H. Gurney.  
Mr. Hassard.

Lord John Hay.  
Mr. Kendall.  
Mr. Macartney.  
Mr. Philips.  
Mr. Augustus Smith.  
Sir Frederick Smith.  
Mr. Wilson.

JAMES WILSON, Esq., IN THE CHAIR.

*Sir John Burgoyne, called in; and Examined.*

*Sir John Burgoyne.*  
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2169. *Chairman.*] YOU were formerly Chairman of the Board of Public Works in Ireland?—Yes, for 13 years.

2170. Before Mr. Griffiths?—Yes.

2171. And since that you have been Inspector-general of Fortifications?—Inspector-general of fortifications.

2172. In your capacity as chairman of the Board of Public Works and inspector-general of fortifications, have you been led to consider the subject of harbours of refuge upon the coast of Ireland?—Very much as chairman of the Board of Public Works.

2173. Is there any particular part of the coast to which you wish to call the attention of the Committee as being particularly exposed to danger, and where you think a harbour of refuge would be very useful?—I am not prepared to go into that just at present; I did not know that I should be asked upon that; I came here expressly with reference to Portrush. I have a strong opinion that Portrush would be a favourable place for a harbour of refuge, as well on account of its position, as the great natural facilities which there are for establishing such a harbour there.

2174. Is it your opinion that the great natural facilities, and the position of Portrush, are such as would indicate it as being a desirable place at which to establish a harbour of refuge?—Yes; particularly so with reference to the navigation of the coast, as it respects vessels going round the north of Ireland, and for defensive purposes, as a place of assembling for men-of-war in time of war.

2175. A great number of vessels going foreign from Scotland and the north of England, when they go what is called "north-about," pass this part of the coast?—They do.

2176. And it is a part of the coast in which they are exposed to considerable danger?—I believe it is; there are two harbours there, Lough Foyle and Lough Swilly.

2177. Lough Foyle is a large harbour at the entrance to Londonderry?—It is; and Lough Swilly is a very fine harbour indeed, but they are both of them rather difficult to go in and out of, I imagine.

2178. Are you prepared to say that there are reasons why a harbour should be constructed at Portrush, independent of the existing harbours?—Quite so; I have a very strong opinion that it would be most desirable to make a harbour there.

2179. Is there a large class of vessels that would be benefited by a harbour at Portrush that cannot avail themselves now of the two existing harbours you have mentioned?—Naval opinions will be better than mine on that subject; but I should think so, on account of the great facilities there would be for going in and out of Portrush.

2180. You mentioned coast defences; you are better able to speak with reference to that subject, I suppose?—Yes.

2181. With reference to coast defences, would you say, other considerations being equal, that Portrush presents advantages for that purpose greater than any other point upon that part of the coast?—I think so, decidedly.

2182. Is



2182. Is there any further opinion that you would wish to express with reference to Portrush?—Not with reference to Portrush; but with reference to harbours of refuge in general, I have found a great deal of difficulty very often in those harbours of refuge on account of the want of land in the neighbourhood, and I think that, where a harbour of refuge is constructed at a very large expense by the public, the public has a right to the increased value of the land in its immediate neighbourhood, such as is occupied by stores and by ship-building yards, and even by the town itself that is always formed about it; I do not see any reason why the individual proprietors should get the benefit of the enormous increase in the value; but that it should go to the benefit of the public towards the expense of the construction and maintenance of that harbour.

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2183. Having a knowledge of the facilities which the particular locality affords for a harbour of refuge, as chairman of the Board of Works, have you formed an opinion as to the mercantile advantages to be derived from such a harbour?—Not at all, except by looking at the plan, and conversing with some gentlemen who know it well, and more particularly with Sir James Danbrain, an officer in the navy, who was for a long time in command of the Coast Guard there, and whose opinion is very valuable in such matters. The thing which first called my attention to it was conversing with him about this very place.

2184. Do not you know the locality yourself?—I never was there myself.

2185. Then you do not know anything as to the facility of obtaining material upon the spot?—No, except from description; I know there are rocky islands there which would furnish material. There is a great deal of basalt rock in the neighbourhood.

2186. Are you able to give an opinion as to the expense of the formation of a harbour of refuge there?—Not at all; but the expense is very much reduced I believe now, from the mode which they have adopted in the neighbourhood of Holyhead, of mining to get material.

2187. Sir James Elphinstone.] Would Portrush be of value in a strategical or military point of view?—Yes; I think the circumstance of its being upon a very prominent part of the coast would make it of value, but that is more a matter for a naval opinion. I can merely say that it appears well situated for the collection of squadrons of ships, and I think it would be a very advantageous place, because it is so easy to get in and out of; it commands the sea on both sides in every direction, and it occupies so large a space that a great many ships might be there at one time.

2188. With reference to the military protection of the country, do you consider it a point of importance that a harbour of refuge should be there?—I think so; and there is another advantage as regards defence, that for the defence of the place itself, the projecting islands there would be very favourable for the construction of batteries and forts at very little expense.

2189. But it would be also of great importance in giving access to the Clyde, to Liverpool, and to ports in that direction?—Certainly; to all the ships that go north-about.

2190. Mr. Macartney.] The Government, at the time you were Chairman of the Board of Works, considered it of such importance to improve the communication from Portrush to the eastward all round, that I believe they contributed a very large sum of money for making a large first-rate road by the shore all the way round to the Harbour of Portrush?—Not during my term; we did not make it to Portrush; we made it all round the eastern side of the county of Antrim.

2191. But the original point of starting was from Larne to Portrush, I believe?—I am not aware of that.

2192. But you recollect that large sums were laid out by the Government in making part of the road?—Certainly; upon the east coast we made very considerable works.

2193. Are you aware, from your experience as chairman of the Board of Public Works, of the nature of the rock in that country; that both the green stone and the basalt is abundant all round about that coast, and would be advantageous for making a harbour of refuge in this locality?—Certainly, most advantageous.



Rear-Admiral *George Evans*, called in ; and Examined.

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2194. *Chairman.*] ARE you Conservator of the River Mersey?—Yes.
2195. How long have you held that situation?—Fifteen years.
2196. Have you had anything to do with the steam navigation?—Yes; I was the first officer in the navy that commissioned a steamer.
2197. Were you the first officer who took a steamer to the West Indies?—I was.
2198. Have you been employed by the Government in respect to harbours in any way?—Yes.
2199. Be good enough to state to the Committee how you were so employed?—I was employed on the Post Office Inquiry Commission, in the years 1835 and 1836.
2200. By the Post Office?—No; on a Government Commission, at the head of which was Lord Duncannon, with Lord Seymour, and Mr. Labouchere; I was joined with them.
2201. What was the special object of the Commission?—Inquiring into the management of the Post Office.
2202. Was that with the view of examining the coast of Ireland with reference to particular places in connexion with the postal service?—That was one branch of the inquiry.
2203. The mail packet service?—That was the branch to which I was specially attached.
2204. In the performance of your duty to that Commission, were you called upon to examine the coast of Ireland, especially in reference to the facilities which it affords for the establishment of harbours?—Yes.
2205. Your reports are published, I believe?—They are.
2206. Where are they published?—In the Sixth Report of the Post Office Inquiry Commissioners, published in 1836.
2207. Did you suggest any changes?—Yes, a good many.
2208. Will you describe to the Committee what changes you suggested?—I suggested that a pier should be built at Pater, as there was a very inconvenient mode of embarking and disembarking passengers at Milford, and that the packets should go, not to Dunmoor, but up to the quays at Waterford.
2209. Do you know the neighbourhood of Portrush well?—Yes.
2210. Did you examine that part of the coast upon that occasion?—No, not upon that occasion.
2211. Your duties did not lead you there?—No; there was no Post Office communication there at that time.
2212. Did you subsequently have occasion to examine that part of the coast?—Yes, I examined that part of the coast.
2213. Upon what occasion?—I was travelling round there; I went round, having been employed at Larne, Portpatrick, Donaghadee, and Lough Ryan; I took a tour in the north of Ireland to look at these places, and amongst the rest I visited Portrush.
2214. That was not a professional tour; it was a mere pleasure tour?—It was a pleasure tour, to see the coast.
2215. What was your opinion of the locality at Portrush when you examined it?—I considered that it afforded the finest site for a harbour I had ever seen.
2216. Do you speak of what you had ever seen in Ireland, or seen anywhere?—I have been round the world, and have seen a great many places, but I have never seen a place where nature afforded such great facilities for making a harbour; I never saw nature do so much to make a harbour as I saw there.
2217. Then you do not confine your answer to the coast of Ireland, but you extend it to the whole of your experience in other places?—To the whole of my experience in every place; on an exposed coast I never saw a place where nature had formed so much in aid of making a harbour.
2218. Will you describe to the Committee the natural facilities which you have discovered?—I first saw that the inside of the Skerries, with the exception of two openings, was protected by islands of rock, and that, if necessary, in consequence of the great abundance of material, those two openings might with great facility

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facility be closed, leaving inside a large basin of a mile wide and a mile and a half long, sheltered in a very perfect manner from every wind.

2219. You mean by closing up the portion of the water between the main land and the small Skerries, and then closing the portion between the small Skerries and the great Skerries?—I should not close up both passages at first; I should close up and join the main land with the small Skerries, leaving the other opening until I saw how it worked.

2220. Then you would propose to connect the different islands constituting the large Skerries by a wall, so as to make the large Skerries into one solid breakwater?—Yes.

2221. Leaving an opening between the end of the breakwater of the small Skerries and the commencement of the great Skerries?—Exactly so; but that opening might afterwards be closed up, or narrowed considerably, if on anchoring the vessels inside, any commotion more than ordinary were felt by the ships.

2222. Then that would, in point of fact, I suppose, be availing yourself of what you think the great natural advantages of the situation, that is, that the Skerries themselves constitute a natural breakwater?—Exactly so.

2223. And they require only a little filling up between each, in order to make them a perfect breakwater; that is what you mean?—Exactly so.

2224. Will you direct your eye to the easternmost point of the great Skerries; do you see a great line of open sea from that round to the coast which measures in all one mile and seven furlongs?—Yes.

2225. With three small rocks at the end of a mile and one furlong, how do you propose to deal with that?—I have seen that in a gale of wind from the eastward, and from the nature of the shore, which is not exhibited upon this plan, but which I can show you upon another, you will see that that is protected; it is not open.

2226. There is a large head a little to the eastward, which would protect that part of the bay; is that so?—Yes.

2227. With the Island of Rathlin in addition?—With the Island of Rathlin in addition.

2228. Then the wind which would naturally lead to a heavy sea in this bay, from which it would not be defended by the works you propose from the Skerries, would be an easterly wind, or a north-easterly wind?—Yes, a north-easterly or an easterly wind partly, not the whole. If you look, you will see that the Skerries would cover a great deal of the upper corner of the bay from the effects of a north-east wind, but from the contiguity of Scotland and the other lands, I have not seen, while it was blowing a gale of wind, when I was there, that it made any sea of consequence in the harbour.

2229. The land to the east was a sufficient protection?—Yes, I think so.

2230. Suppose you had a wind north-east by north, or due north, what protection would you have with this large space of sea open to it?—It would come down on the beach here, and would not interfere with the harbour at all.

2231. A wind from due north would blow in straight upon the shore?—Yes; the sea then expends itself upon the sandy beach.

2232. But the wind a point or two to the eastward would blow into that harbour?—Yes; but then the land to the eastward would cover it; it covers it from the east wind completely.

2233. But my question is, a north wind, with a point or two to the east, not an east wind?—If you cast your eye upon the east end of the large Skerries, you will see a compass upon the top; if you draw a line through that compass in the direction there, and then draw a parallel one on the east end, you will see the extent of the bay not touched by that wind; draw a line in any direction between north and east, and then draw with your finger a line parallel to that, and you will find then the quantity of that bay inside which is perfectly sheltered.

2234. Then if I understand your meaning, it is this, that although there might be a heavy sea thrown in by a north or north-east wind, from which the harbour would not be protected by the headland to the east, yet that would blow in at an angle which would still leave a large portion of the water in the harbour protected by the Skerries, and undisturbed by that gale?—Certainly; ships would be protected from that, and an admirable mode of expending that sea is afforded by that sandy beach.

2235. Do you know anything of the materials which are found upon this spot?—Yes; I inspected them very minutely last year.

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2236. Is

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2236. Is it a sort of material fit for the purpose of making a breakwater?—Capital.

2237. Would it be easily worked?—Remarkably easy; it is all close to the spot.

2238. Have you made any estimate of what the expense would be of those works which are indicated in this plan?—I asked a very competent engineer what the expense would be; I told him what I would like to do there; I asked him what he thought it could be done for, and he said he would make it a most convenient harbour for under 100,000 *l*.

2239. Suppose after you had made the works marked upon this plan, you found that the opening between the great Skerries and the little Skerries exposed the harbour to the north-westerly gales, what would you propose to do?—I would contract that entrance if I found it became necessary; I should think the benefit of the works would amply justify the expense, and pay for the expense of it; I would extend the breakwater from the small Skerries, so as nearly to connect it with the large one, but I would not shut up the opening altogether; I should like the entrance left there.

2240. What is the extent of the large opening now between the two Skerries?—The extent of the opening now, is about 400 yards.

2241. Have you an idea of what it would cost to do that?—Judging from what this gentleman, who I consider a most competent man, and would have done the work himself, told me, I should say it would not cost more than about from 15,000 *l*. to 20,000 *l*.

2242. To fill up all the space?—The space that would be required; not the whole, but so as to make it amply secure, provided any sea, which I do not think would come there, did come.

2243. Is not the worst gale you have to contend with upon that coast, a north-west gale?—Yes.

2244. Would not this be a direct opening in the mouth of the north-west gale?—Yes; but then the waves coming in there break upon the rocks on both sides, so that a very small portion of the wave remains, having been obstructed outside and broken, it cannot come in to do much injury inside, because it is broken before it comes in; it is only a little bit of the broken part that comes in, and that is so knocked up on one side of the rocks, and the other, that it is flattened before it comes inside.

2245. Then you expect that the force of the wave would expend itself upon the rocks on each side before it came in?—Yes.

2246. And though therefore there might be a current between the two, there would not be much sea?—Not much sea.

2247. It would be a straight rolling sea, and not a breaking sea?—It would not do much harm.

2248. Admiral *Duncombe*.] I understand you to say that the roadstead at Portrush is at present sufficiently protected from any wind from north to east that might blow?—I think, up in one corner of it, it is.

2249. And that there would be sufficient protection in any part of the roadstead, with the improvements proposed to be made, so as to afford a safe anchorage?—Yes.

2250. You talked of the sandy beach, would there be any fear in that locality, in the event of this breakwater being made, of the roadstead or harbour silting up?—I do not think there would be the slightest. In the first place the tide now comes in and goes out, and consequently it prevents any silting up at all; and in that way that part being kept open, and not closed more than it would be absolutely necessary to keep the harbour perfectly smooth, there would be no silting.

2251. You think that, if the opening between the Skerries was contracted as much as possible, there would be no fear of the harbour silting up?—Not the slightest, because there is no channel or river running into the harbour to carry the silt or dirt into it; the whole sewage of the town goes the contrary way.

2252. From your knowledge of the coast is there a point between Belfast and Lough Swilly that would be equal in your judgment to Portrush as a harbour of refuge?—There is no place at all; there is a wild anchorage under Fair Head, but it is very wild indeed.

2253. Lord

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2253. Lord *John Hay*.] What trade would take advantage of this harbour if it were constructed?—If that harbour were formed there it would be a very great inducement to ships to go north-about from Liverpool for the trade of America, and from Scotland certainly. All those vessels, sailing ships particularly, require a large harbour, and must have room; and here is one in which any sailing ship could beat in, or beat out, and in any weather that she could keep the sea.

2254. What do the ships do now that would be likely, supposing that harbour existed, to go there?—They go south-about many of them, because they see that if they go north-about, and are caught, there is no place for them, except by running back again.

2255. Why would it be preferable to go north-about?—They have a better run to America by going north-about than south-about, it is a shorter distance, besides that, and they get into better water, some of the Canada ships particularly.

2256. Why cannot they go into Lough Foyle?—That may do for steamers, it is not a place to run sailing ships into.

2257. Or Lough Swilly?—Or Lough Swilly; they cannot get out again. If they get in they may have a better wind inside; but it is like being in Cork; they cannot get out again; the great object in a harbour is, that when a ship gets in, she may get out again in any wind. Now there are two entrances to this, and whichever way the wind blows, they can get out if the ship carries sail.

2258. What number of vessels do you suppose would take advantage of that harbour in the course of a year, speaking very roughly?—Well, I can hardly judge; nobody could judge what the traffic upon the railways would be until the facility was afforded to the public; nobody could contemplate anything like the amount that might come here, if this harbour was open; it would be impossible to calculate the number of vessels that would take advantage of it going round to the north.

2259. What is the proportion of days in the year when the weather is such as to make it necessary for vessels to take advantage of that harbour?—A large number of vessels would be very glad to have a harbour there.

2260. For what period of the year?—I should say there are five or six months in the year when it would be very desirable to have such a place to stop at, so that they could communicate with Liverpool or London, by electric telegraph, in a few minutes.

2261. Do you suppose there is great interest excited in the Liverpool trade about having a harbour there?—I have never asked the Liverpool authorities or the trade about that; but I should conceive, being a sailor, they would be very glad to have a harbour in the north of Ireland, for going north-about there.

2262. Mr. *Hassard*.] What is the holding-ground there?—Clay, which is the best holding-ground there can be.

2263. Do vessels ever at present lie under the Great Skerries for shelter?—Yes.

2264. In case it should be found that the harbour was too much open to the wind at north-east, would it be possible to extend that greater Skerries, or to extend the pier from it, so as to inclose the port more?—If you wanted that, it would be the easiest thing in the world to buy a parcel of old ships, take them there, fill them with rock which is there on the spot, and sink them, so as to make a perfect breakwater at the other end, which would make the protection complete.

2265. Is the rock sufficiently high to afford stone for that purpose?—You would have to fill the vessels from the shore. You would have a pier where they would lie in safety while loading.

2266. It is not from material upon the island itself that you would do that?—No; you would not diminish the island by taking material off it.

2267. Is it not rather a shorter course for a vessel outward-bound from Liverpool to go south-about, rather than north-about?—It is much shorter to go north-about to many parts of America than to go south-about.

2268. I speak of the distance from Liverpool to the point of departure from the Irish coast; take Tuskar and Fair Head as the two points?—From Tuskar you must measure to the south-western point of Ireland, and from Fair Head to the north-western point; the one is much longer than the other.

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2269. Does not the Channel open very much when you get to Tuskar?—Yes; you have got the wave of the Atlantic. Suppose a wind from the south-west, which very often blows (it is the prevailing wind), then a ship can go north-about, and get away when she could not get by Tuskar.

2270. That would be a foul wind for a vessel coming home north-about?—If she could not weather the south-west of Ireland in a south-west gale, she would steer round the north.

2271. That would be a foul wind for a homeward-bound vessel coming through the North Channel for Liverpool, if she was as far as Fair Head?—But she would have a strong tide in her favour and a smooth channel.

2272. The Channel is very narrow between Donaghadee and Portpatrick, and between the Down coast and the Isle of Man?—It is from 18 to 20 miles across the narrowest part of it, and that is ample for any ship in the world to beat; they have the land on both sides to guide them.

2273. Is not that very much narrower than the South Channel?—Yes.

2274. I believe the narrowest part of that is not much less than 50 miles?—It is much broader to the south; but ships will keep in sight of land coming in; they have only one land to guide them south, but there are two lands, and two marks to guide them when coming north.

2275. Which way does the bulk of the ships from Liverpool go at present?—The great bulk goes to the south.

2276. You said you recommended, I think, a pier to be built at Pater?—To go up to Pater in preference to stopping at Milford; I recommended a pier to be built at Pater, near the dockyard.

2277. I understood you to say also that you recommended packets to go up to the quay of Waterford, instead of stopping at Dunmoor?—I did; I surveyed the river.

2278. There was no obstacle in the river at Waterford to prevent the postal steamer from going up to the quay?—I believe there was only one, which I got removed in 1835.

2279. Mr. *Ewart*.] I believe you stated that the course outward-bound vessels, both from the Clyde and from the Mersey, take is south-about?—The bulk of them.

2280. Considering the prevalent winds upon that coast, do you think, if there was a harbour of refuge at Portrush, that the greater number of outward-bound vessels from the Clyde and from Liverpool would take the north passage?—Yes.

2281. Mr. *Philips*.] Was your attention ever called to the expediency of erecting any harbour between Milford and Holyhead?—No, except that one at Porthdinllaen, which I reported against.

2282. Mr. *Gurney*.] Is it your opinion that supposing a harbour of refuge were made at Portrush, it would be effectual in preventing wrecks?—We cannot prevent wrecks.

2283. But in diminishing the number of wrecks?—No doubt a harbour of refuge has a great tendency in that way, no doubt about that, particularly such a one as you would have here, that ships can run in and out of both ways.

2284. It would tend to diminish the number of wrecks which now actually occur?—I think so.

2285. Then will you be good enough to say where the wrecks occur at the present time which in your opinion would be diminished by a harbour at Portrush?—Without reference to the wreck chart, which we publish annually, I could not at present tell you how many wrecks take place there; there is a record of them published annually.

2286. I think you mentioned that Lough Foyle, although it is not a sufficient harbour of refuge for sailing vessels, is a good and adequate harbour of refuge for steamers?—Steamers can go in and out of many places where they could not take a sailing vessel in bad weather; I have run a steamer in a gale of wind between two rocks where I had little more than her own breadth, but I could not take a sailing vessel in that way.

2287. Do you consider Lough Foyle an adequate harbour of refuge for steamers?—I consider Lough Foyle an adequate harbour of refuge for steamers, and Lough Swilly also in certain seas.

2288. Would it not answer as a protection to sailing vessels also, provided steam-tugs were at hand to take them in and out?—You could not get a steam-

tug

tug to move her if she were in a gale of wind ; a steam-tug is of no use in a gale of wind to a sailing ship ; she could not move her.

2289. But they would be useful for taking these vessels out that obtained shelter there?—Yes, in fine weather ; but you must have fine weather for a steam-tug to be of any use ; in a heavy gale all the hawsers would be broken.

2290. Sailing vessels cannot obtain access to Lough Foyle in stormy weather ?—I do not say they could not obtain access, but a man would rather keep the sea than attempt it in a heavy gale and thick weather.

2291. Mr. *Macartney*.] Lough Foyle has a very narrow entrance, I believe ?—Yes.

2292. There is an impediment outside, is there not, also ?—I cannot speak very distinctly to that, for I never surveyed or examined the outside, except on looking at the Admiralty chart ; I know it is not very easy of access.

2293. Do you know the Tongue rocks ?—Yes.

2294. Are not those rocks considered a great impediment to the entrance of the harbour at night, or in dark weather ?—No doubt they are ; they require great care.

2295. Is there any impediment in the way right at the entrance of Lough Swilly ?—Yes, I believe there is ; according to the Admiralty chart there is.

2296. Have you ever sailed up, or steamed up, into Lough Swilly ?—I did once, but it is a great many years ago, and my memory does not serve me to give a correct description of it.

2297. Do you remember the distance from the mouth of the Lough to the anchorage ground ?—It is a great distance up.

2298. Sir *James Elphinstone*.] I think the anchorage of Lough Swilly is up at Buncrana ?—It is so long since I was there that I really cannot recollect.

2299. That is the anchorage, is it not ?—Yes.

2300. You cannot get out of it in a northerly wind ?—No ; and I should beg to remark that you can get out of this new harbour, with any wind that blows south, as long as the ship carries sail.

2301. Mr. *Ewart*.] You know the port of Liverpool very well ?—Yes.

2302. Is it not the present custom at Liverpool for all vessels that are outward-bound to take tugs a long way to the southward of Holyhead ?—They very frequently do so in fine weather.

2303. If there was a harbour of refuge at Portrush, would they abandon the present custom which they have at Liverpool, and sail north-about, having that harbour under their lee ?—I have no doubt they would ; none whatever.

Sir *James Dombain*, called in ; and Examined.

2304. *Chairman*.] I THINK you are Inspector of the Coast-guard Service in Ireland ?—I was for 30 years.

2305. You are not now ?—I am not now ; the office has been abolished.

2306. In your capacity as inspector of the coast-guard service, are you well acquainted with the harbours and anchorages on the coast of Ireland ?—I know not only every harbour and every anchorage, but every boat port.

2307. Then you are familiar with the whole coast ?—I am familiar with the whole coast.

2308. Then, of course, you are very well acquainted with the Skerries of Portrush ?—Perfectly.

2309. What is your opinion of the anchorage off that port ?—It is uncommonly good anchorage even as it is ; I have anchored there with a whole squadron of revenue cruisers, 19 or 20 at a time.

2310. By what gale is the harbour affected ?—Solely by the north-west.

2311. It is protected from the easterly wind, is it not ?—There is no sort of sea ; there is no space for it ; there is not a space for the sea to get up sufficiently to affect the harbour.

2312. With the wind blowing to the north, with a point or two to the east, would there not be a strong sea up there then ?—No ; the tides are so very rapid outside in the Channel, that they keep down the sea whichever way they may be running. There is very little sea thrown upon the shore by any but a north-west wind. I anchored there myself once when it was blowing very hard from the north-west, and we found it exceedingly inconvenient, from the

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tossing about we got from the sea working through the various openings in the rocks, so much so, that we were obliged to veer away the cables, and get out a hawser, and fix it to the rings on the rocks, to keep us clear from it.

2313. Then the Skerries are now used as means of protection?—A great deal.

2314. And it is not unusual for vessels to run under the great Skerries as a protection from the north-west wind?—They frequently lie there for that purpose.

2315. And there are rings fastened upon the island for the purpose of attaching vessels?—Yes.

2316. So that in its natural position it was so sheltered from the wind that the Skerries have been used as a breakwater?—Certainly.

2317. Do you know Lough Foyle?—Very well.

2318. Is that a safe harbour of refuge?—When you are in it.

2319. Then the difficulty is to get in, I suppose?—The difficulty is to get in, particularly at night.

2320. Is there a difficulty also in getting out of it when you are in?—With sailing vessels, when they are in, it is difficult to get out, unless the wind be fair, for the tides there run very rapid.

2321. A vessel, therefore, that was anxious to proceed upon its voyage, would be unwilling to go in Lough Foyle, running the risk of not being able to get out when once in?—She might get out with a fair wind, or with the tide in her favour.

2322. I suppose there are no tug-steamers there?—No.

2323. But there could be if there were trade there to employ them?—Yes.

2324. Tug-steamers would get over all the difficulty of getting out, would it not?—No, not if it was blowing hard, she could not; she could not control a sailing vessel when it was blowing hard.

2325. If it was blowing hard, a vessel would not want to get out, would she?—She might if there was a fair wind for her.

2326. Do you know Lough Swilly?—Very well.

2327. Is not that a good asylum?—It is not a place that you can run for at night. The Swilly rocks are immediately in the mid-channel, upon which the "Saldana," one of Her Majesty's ships, was lost.

2328. You say that the prevailing wind, from which you wish protection upon this coast, is the north-west wind?—The north-west wind.

2329. Have you looked at the plan before you?—I have.

2330. Do you think that the suggested plan of filling up the interstices between the different rocks that constitute the great Skerries, and then running a pier or a wall between the mainland and the little Skerries, as is marked upon the map, would effect the great object which is required?—I do. I conceive that through the opening which is proposed to be left there, a regular succession of seas would come in, and would not be felt probably much in the harbour. Where the difficulty is now, is that the numerous seas that come in from the different points between the islands make such a great commotion inside, that a vessel cannot lie with much safety.

2331. You think if there was only one opening, the sea would expend itself upon both sides of that opening, and lose its force before it got in?—Yes, I conceive it would.

2332. Have you frequently anchored within the Skerries?—Frequently.

2333. Do you know what the extent of the protected water would be by the works which are marked upon the plan lying before you?—About a mile and a half in length, and a little more than a mile in width.

2334. With what depth of water?—From six to nine fathoms.

2335. Would that be sufficient water for any sized ship?—For any sized ship.

2336. What number of acres would the area which you have described be?—I have not calculated that; but it is marked here as 680 acres.

2337. What is the holding ground?—Remarkably good; nothing can be better; it is a sort of heavy clay.

2338. Are you able to speak, from your own experience, as to the general commerce of the country that would be likely to avail itself of this harbour?—From going round so often as I have done, I have met with vessels homeward-bound and outward-bound frequently off that coast, and I am quite sure that in



many cases they would take that harbour as a harbour of refuge, instead of remaining at sea, if it was secured to them.

2339. Are there many losses upon that coast?—There have been a great many losses, particularly about Rathlin.

2340. There are not many marked upon the Wreck Chart?—In my own knowledge, within the last three or four years there have been four or five wrecks.

2341. Is there much smuggling upon that coast?—None at all, that I am aware of, except whiskey smuggling.

2342. Do you think, from your knowledge of the coast generally, that if there were a harbour there, the north passage would be much more used than it is at present?—Most decidedly.

2343. You think that there are advantages in using the north passage frequently in preference to the south passage, but that vessels are deterred from using it in consequence of the dangers of this coast?—I think that is one cause, the exposed nature of the coast, having no harbour of refuge there; another cause is the great danger of the south coast from the time a vessel reaches over to the Irish shore; she has a vast variety of banks all the way down to Tuskar, involving great danger; first, there is the Kish bank, next, the India bank, then the Arklow bank, and the Blackwater bank; all those are very dangerous.

2344. But all those are reasons for preferring the north, instead of the south passage?—Precisely; there are many causes why they would go north-about, if they had an asylum harbour there, owing to the dangers of the south passage.

2345. Admiral *Duncombe*.] Are you or have you been in Her Majesty's naval service?—I have.

2346. As such, were you employed upon that coast?—No; I was originally in the navy; I was employed by the Treasury to establish the coast guard force in Ireland.

2347. In that capacity, were you frequently upon the coast?—Yes, constantly every year; I inspected the coast guard force round the coast of Ireland every year for 30 years.

2348. Was that done by sea or by land?—Frequently by sea, and frequently by land.

2349. Do you agree generally with the evidence of Admiral Evans as to the facilities and advantages of making Portrush a harbour of refuge?—Precisely.

2350. From your knowledge of that locality, do you agree with him in opinion as to the non-silting up of the bay in the event of a breakwater being made?—Certainly; I do not think it will ever silt up; there is no mud, or anything of the sort, to affect it in the way that harbours are sometimes affected.

2351. The absence of wrecks upon that part of the coast, I suppose, is to be attributed to the comparative smallness of the number of vessels going the north passage, as it is called, as compared with those that go south?—That may be one of the causes.

2352. Are you aware that there are very few wrecks marked there?—I am aware that there are but few wrecks marked.

2353. And you think that if a harbour of refuge were made upon that part of the coast, a great number of the vessels now going south-about would go north-about?—Yes.

2354. Sir *Frederick Smith*.] You say it is difficult to get into Lough Foyle in the night?—It is.

2355. Would it be difficult to get into Portrush in the night?—No, if a light was placed upon the east end of the small Skerries, and another light were placed upon the rocks, about seven furlongs from the shore, they would effectually guide a vessel into the anchorage.

2356. Lord *John Hay*.] Is there any other objection to Lough Foyle except the difficulty of getting in during bad weather?—There are very rapid tides at Lough Foyle, and if you meet with baffling winds in sailing vessels, you would find it exceedingly difficult indeed to anchor or get a vessel in safe. It is a very narrow entrance; the tides are very rapid, and the Tuns, which lie but a very short distance from it, are exceedingly dangerous, and not to be seen at night.

2357. Suppose you lighted it in the same manner as you propose to light Portrush, would not that obviate the danger?—It is lighted already by two lights on Innishowen Head.

2358. With reference to the small number of wrecks which are shown upon  
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that north part of Ireland, is it not fair to assume that a number of those vessels that are lost at sea must have been lost in consequence of there being no harbour of refuge there?—It is very possible; indeed we lost a revenue cruiser from that very cause at sea in the year 1839; a remarkably fine cruiser, of 160 tons, with all hands on board, a very short distance from the Skerries.

2359. What is the cause of all wrecks in the Irish Channel off Belfast; are those vessels principally belonging to the Liverpool trade?—I think they are principally in the coasting trade, and steamers out of Liverpool. The fogs that prevail in the Channel are the great cause of loss.

2360. It is not the case of vessels that have been driven back?—I think not.

2361. Do you know of any great interest being excited in Liverpool at the prospect of a harbour of refuge being constructed here?—I do not know.

2362. Or in Scotland?—I do not know at all; I should state that when Sir John Burgoyne was chairman of the Board of Works, I had frequent communications with him upon the subject of having a harbour of refuge at Portrush, and pointed out the desirableness of having it done if it could be possibly done by the Board of Works.

2363. You do not know that there is any strong desire upon the part of the traders to have a harbour of refuge there?—At different times during the long period that I have been in Ireland, I have often heard the subject broached and brought forward by people who were concerned in the trade of the country, expressing a great desire to see it accomplished, and that it would be a thing of great national importance.

2364. Supposing it were a question whether there was to be a harbour upon the northern or southern coast of Ireland, for the benefit of the Liverpool trade, which do you think they would prefer?—I do not think you could have any new harbour upon the southern coast.

2365. You might improve Waterford?—I think you only require a little dredging to improve the bar at Waterford, and I think that might be done without any great expense.

2366. Mr. *Hassard*.] You spoke of the dangers attending the southern passage?—Yes.

2367. Are there not also great dangers attending the northern passage?—The only dangers in the northern passage are, the Maidens, off Larne, and they are so well lighted, and the Channel generally is so well lighted, that we hear of no wrecks there.

2368. Have there not been a good many wrecks lately on the rocks upon that coast?—No; the only wrecks there have been upon Rathlin Island, I think.

2369. Have there not been a good many wrecks upon the rocks near Belfast, upon the Copeland Island?—No, not that I am aware of.

2370. You spoke of fogs being prevalent there, I think?—Yes.

2371. In what part of the Channel are those fogs prevalent?—Principally round Belfast Lough, the low land about the County Down, I think, causes it.

2372. That is in the narrow part of the Channel?—No; if you take the Channel from Ireland to Scotland, it is not narrow; it is at the narrowest point 20 miles wide.

2373. It is narrow compared with the southern channel?—It is.

2374. What do vessels at present do when they are headed with a strong north-westerly gale off the north coast of Ireland?—I believe they generally remain at sea for want of a port to run to.

2375. Do they ever turn back, and run out by the southern passage?—They may do that, but it is not likely.

2376. A strong north-westerly gale would be a fair wind in which to do so, would it not?—It would be so, but the distance would be very great.

2377. If they could weather Fair Head?—Yes.

2378. And then run down Channel?—Yes.

2379. Mr. *Clay*.] Is there a constant packet service between Londonderry and Liverpool, Glasgow and London?—No, not a packet service.

2380. I mean steamers conducted by private companies?—There is.

2381. Did you ever hear of any of those vessels being lost?—I think there was one lost; I am not quite certain; but I think there was one of them lost.

2382. You do not recollect the circumstance, whether it was entering Lough Foyle or not?—No.

2383. Mr.

2383. Mr. *Macartney*.] Do you recollect the loss of the "Saldana" frigate?—  
Yes.

2384. How many years ago is that?—It was in the year 1818 or 1819.

2385. Where was she wrecked?—In Lough Swilly, with every soul on board.

2386. How far is the safe anchorage from the entrance of Lough Swilly?—  
Fifteen miles.

2387. Is it your opinion, from recollecting the circumstance, that if there had been a harbour of refuge at Portrush, that vessel would have been saved?—  
I think so.

2388. Instead of having to run to Lough Swilly?—Yes, she would have run for the Skerries.

2389. What is the distance of Tory Island, the first land made from America, to the Skerries?—About 40 miles.

2390. Consequently a vessel arriving there about mid-day, could easily make the Harbour of Portrush, and wait there for orders, either from London or Liverpool?—Yes; particularly with a north-west gale.

2391. *Chairman*.] I think you stated, in the course of your examination, that, as Inspector-general of the Coast Guard, you had suggested to the Chairman of the Board of Public Works, more than once, the necessity of a harbour of refuge being made at this spot?—I did.

2392. Did you do that in your official capacity from the experience which you had of the necessity of some refuge being provided there?—Precisely.

2393. Mr. *Augustus Smith*.] With a wind at north-east a vessel could not get out of Lough Foyle, I suppose?—No.

2394. And the same remark applies to Lough Swilly?—The same remark applies to Lough Swilly.

2395. A vessel running in for shelter in a westerly gale, and the wind turning round to the northward, could not get out of either place?—She could not.

2396. But she could get out of Portrush?—She could get out of Portrush if it was formed in the manner proposed here.

*Captain William Cumming* and *Captain James M'Kellar*, called in; and  
Examined.

2397. *Chairman*.] (To Captain *M'Kellar*). YOU are a Captain in the Merchant Service, and have been frequently in the habit of going north-about to America from the Clyde?—Yes.

2398. (To Captain *Cumming*). And you have been generally in the habit of performing the same voyage?—Yes.

2399. Do you belong to Greenock or Glasgow?—We both belong to Glasgow.

2400. (To Captain *M'Kellar*). Have you ever experienced any difficulty in obtaining shelter upon the north coast of Ireland, in the case of a north-west gale?—Frequently.

2401. Have you ever taken shelter behind the Skerries?—No.

2402. You never did?—No.

2403. What is the most dangerous gale that you have upon that coast?—The most prevailing winds upon that coast are from south-west to north-west, for nearly nine months in the year.

2404. From the south-west you are well protected upon that shore; it is off the land?—Yes.

2405. The dangerous gale, therefore, would be from the north-west?—From the north-west; from west to north-west.

2406. Is there any shelter upon that coast from a north-west gale?—None.

2407. What do you do when you are caught in a strong north-west gale when you are upon that coast?—You must try and keep your ship at sea; stand off, or run back for some place where you can get safety.

2408. A north-west gale would be very apt, if you pursued your voyage, to drive you upon shore?—To drive us upon shore.

2409. Then, if it was a very strong gale, you would have great difficulty in keeping off the shore?—Yes; if anything gave way, we should get on shore for certainty.

2410. You know the Skerries very well?—Yes.

2411. You know the land in the immediate neighbourhood of the Skerries?—  
Yes.

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2412. The

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*James Dombrain*.

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*Capt. W. Cumming*  
and  
*Capt. J. M'Kellar*.

Capt. W. Cumming  
and  
Capt. J. M'Kellar.

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2412. The bay is very well protected from the north-east by the head-land to the eastward of the Skerries?—It is.

2413. But there is no protection from the north-west gale?—None whatever.

2414. If you could get inside the Skerries, you would be protected from that wind, would you not?—At present, the sea rolls very much into that place; there is not much protection for a ship at the present time.

2415. Have you looked at that map which is on the table?—I have.

2416. Suppose there was a sea-wall made between the land and the Little Skerries, and the openings of the Great Skerries were filled up, do you think that would afford protection for vessels inside?—I do.

2417. Do you think that that which is a very imperfect protection at present would become a very good protection by means of those works?—I think so.

2418. Are there many losses upon the coast, so far as your knowledge is concerned?—There are a number of ships lost upon the north-east and north-west coast of Ireland. I have known steamers and sailing-vessels lost there.

2419. In sailing from the Clyde, do you frequently go south-about?—We are generally guided by the winds; but I prefer the north channel myself.

2420. Of course, going from the Clyde, the north channel is much the shortest if the wind is favourable?—Yes.

2421. To whatever port in America you were going, whether Canada or the United States, from the Clyde, the shortest route would be the north channel?—Yes.

2422. You would, therefore, only take the south course; when the wind was unfavourable, to taking the north course?—Quite so.

2423. But is it frequently so unfavourable that you prefer to take the south channel rather than the north?—At any time, when we could avail ourselves of the north channel, we would always prefer it.

2424. But, as a matter of fact, at the present time, do the greater number of vessels that leave the Clyde in the American trade go south-about?—At present a great number of vessels bound to any part of the States go the north channel, when they can do it.

2425. But, I want to know whether you think the larger number of vessels at the present time, sailing from the Clyde for North America, take the south or the north channel?—I think the north.

2426. The greater number?—I think so.

2427. Do you consider that many vessels are deterred from taking the north channel in consequence of the danger of the coast?—I can hardly answer that question.

2428. At what period of the year do the north-west winds prevail chiefly?—The season of the year is, I think, from June to February; that is the time of the most westerly winds.

2429. The Canada trade is chiefly in the fall and the spring?—Yes.

2430. That is, from August to October in the fall, and from April to June or July in the spring?—Yes.

2431. Then do you consider that the establishment of a harbour of refuge at the Skerries would materially add to the inducements which at present exist for vessels going by the shortest passage?—It might induce many Captains to go north knowing, that in the event of anything occurring, they would have an open door to run into at that place.

2432. (To Captain Cumming). Do you agree with what Captain M'Kellar says?—I do as far as the Montreal trade is concerned; it all goes by the north channel, or principally.

2433. I suppose for the Canadian trade, taken as a whole, the passage is very much shorter by the north than by the south channel?—Yes; and even from Liverpool; ships leaving Liverpool with a south-west wind would take the north channel; with a south-west wind they can lead along, and can go through the channel; but the only difficulty is when they get through the north channel as far as Innistrabull.

2434. Have you ever sailed from Liverpool?—Yes; frequently.

2435. In the American trade?—Yes.

2436. Then from your knowledge of Liverpool, as well of the Clyde, is it your opinion that a great number of vessels would take the north channel which do not take it now, if there were a harbour of refuge upon that coast?—Certainly.

2437. For

2437. For the Canadian trade, both from Liverpool and the Clyde, the north channel would be decidedly the shortest?—Certainly.

2438. As far as the Clyde is concerned, whatever part of the United States, or of British America, a vessel was going to, the north channel would still be the shortest?—Yes, and the better wind.

2439. From Liverpool and the Clyde to the southern parts of the States to New Orleans or any part of the south, the difference of distance would not be so important?—Not so much so; but still, with a south-west wind, they can go through that channel.

2440. Then even from Liverpool, from the great prevalence of south-westerly winds you think that a large number of ships going to America in the course of the year, would take the north-about channel, if there was a harbour, which are now deterred from going that way in consequence of the danger of the coast?—That is my opinion.

2441. Do you act upon that opinion yourself as captain of a ship?—Yes.

2442. Do you think, from your knowledge of the opinion of other captains, and of merchants in Liverpool and ship owners, that the north passage would be taken more frequently, but from the danger which attends that coast?—Yes.

2443. With regard to the advantage of the Skerries, or the facilities which they afford for shelter with the improvements made, which are marked upon that map, and which I suppose you have seen, do you agree with the views expressed by Captain M'Kellar?—I do.

2444. Admiral *Duncombe*.] (To Captain *M'Kellar*.) Can you state to the Committee about the number of times you have sailed from the Clyde, and have gone the north passage, when you could not go south?—I commanded a steam ship from Glasgow to Londonderry and Sligo for a number of years, which sailed both from Liverpool to Sligo, and from Glasgow to Sligo.

2445. But my question had reference to your going foreign?—I think there would not be much difference.

2446. It would be about equal?—I think so.

2447. Are there not instances in which you would have gone the north-about passage, if you had known that there was a harbour of refuge upon that part of the coast, but have been deterred from doing so?—I can hardly answer that; it never struck me, but I am perfectly satisfied that if we knew there was a harbour of refuge there, it would make us much more bold, and we would very frequently take advantage of it.

2448. I understand you to say that you know but little of Portrush yourself, never having been into it?—I have been frequently into it; I suppose I have been 100 times.

2449. Was that in a steamer?—Yes.

2450. But since you have commanded a sailing vessel in the North American trade, you have never taken shelter there?—No, never with a ship; it is not fit for a ship to go into.

2451. A ship of what size do you mean?—A ship of 400 tons would be in great danger if she were to go in there.

2452. Is that about the size of the ships you have commanded in the American trade?—No; they have been larger than that.

2453. Has it ever happened to you in making this passage, that you have been obliged from stress of weather, to put back and seek shelter elsewhere, in the absence of any being afforded upon the north coast of Ireland?—No, I never have.

2454. You have always kept the sea?—Always kept the sea. I do not recollect ever being driven back.

2455. Lord *John Hay*.] (To Captain *Cumming*.) You have been principally engaged in the Glasgow trade, I believe?—Yes.

2456. Have you ever gone to other parts of the world than North America from Glasgow?—I went to the Mediterranean lately in the transport service.

2457. Does the larger proportion of the Glasgow trade go out by the north of Ireland; taking the whole trade, which do you think is the larger proportion?—The course of the Glasgow trade is Canada; it all goes that way.

2458. Taking the larger proportion of the trade, does the larger proportion go out by the north of Ireland?—I cannot answer that question.

2459. Is it not of great advantage to get out to the open sea as quickly as possible, although you may lose a certain amount of distance by not going down

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the Irish Channel ; do not you think it is a great advantage, whenever you can, to get out to sea immediately ?—It is of very great advantage.

2460. What is the average time you take to get out south-about ?—I have been from Tory to Greenock in 12½ hours.

2461. I mean going south-about ; getting out of the Irish Channel from Glasgow, what space of time do you usually occupy ?—It would take 36 hours to get down to Cape Clear.

2462. That is in a fair wind ?—Yes.

2463. But I mean taking the average of all the passages, long ones and short ones, what would you state to be the time ?—I cannot give an idea ; it depends upon the sailing capability of the ship.

2464. Is it the general opinion in the Glasgow trade, besides your individual opinion, that it would be desirable to have a harbour of refuge at Portrush ?—I think so.

2465. Do you think they would prefer to have it there rather than in any other part, for the benefit of the trade ?—It is the only place that I know of.

2466. Is there any place in the south channel, going south-about, where a harbour of refuge is wanted ?—There is a harbour of refuge wanted at Waterford ; it is desirable to deepen the bar there.

2467. Which do you think is the most important ?—I think the Skerries is the most important, because it is half formed already.

2468. For the Glasgow trade ?—Yes.

2469. What proportion of vessels do you suppose would take advantage of a harbour of that sort in the course of the year ?—A great many ships would take advantage of that harbour.

2470. I do not mean as a matter of convenience, but for safety ?—For safety. There is often a ship coming into the channel with a southerly wind a-head of it, that cannot fetch the Mull of Cantyre, and she gets drawn down to leeward, and out to sea.

2471. Do you agree with those witnesses who have stated to the Committee that Lough Foyle and Lough Swilly are both extremely inconvenient, in fact almost useless ?—Yes ; with the wind anything west.

2472. As far as the trade is concerned, they might just as well not exist ?—A ship putting back cannot get into them ; a ship bound out cannot get out of them when the wind comes fair.

2473. Mr. *Hassard*.] Is there not a large trade with the West Indies from Glasgow ?—To Greenock and Glasgow there is a large trade.

2474. And also a trade with America and the Mediterranean ?—A good deal to the Mediterranean.

2475. Does the bulk of that trade go north or south ?—Principally south.

2476. Would it still continue to go south if there was a harbour of refuge at Portrush ?—It is the nearest way to go south.

2477. I understand you to say that the principal danger of the north passage is, running out with a north-west wind ; if you are headed with a north-west wind, there is no place to take shelter ?—Yes.

2478. And that Port Rush would be a great advantage for you ?—Yes.

2479. Mr. *Hewitt*.] (To Captain *M'Kellar*.) You have stated that the prevalent gales upon that coast are the south-west and north-west for nine months in the year ?—Yes.

2480. When a vessel has taken shelter in Portrush from a south-west gale, the gale suddenly veers round to the north-west sometimes ?—Yes.

2481. Could a vessel get out of Portrush with a north-west gale if it were made a harbour of refuge ?—Yes, because there would be two doors to it ; there would be two entrances.

2482. I speak of outward-bound vessels ?—They could get out with a north-west wind.

2483. But could a vessel lay her course out of Portrush with a north-west wind, to stand up to the southward or westward ?—She could get out with a north-west wind to go round the south of Ireland ; she could not go west.

2484. But, I ask whether a vessel, going out of Portrush, bound to the westward with a north-west wind, must not go to the southward ?—Yes ; the wind is right a-head. She must go the southward.

2485. Mr. *Kendall*.] As to Portrush ; have you heard of it very lately or

for a long series of years as a very desirable place at which to have a harbour of refuge?—I have heard it spoken of for some years.

2486. You have seen the plan there; do you think it a convenient spot?—I think it would be very desirable and very suitable.

2487. As it is now?—If it were filled up.

2488. Mr. *Macartney*.] (To Captain *Cumming*.) In coming south-about from America, is it not the practice of a number of ships belonging to the Clyde to call at the Cove for orders?—Yes.

2489. That has been the custom?—Yes.

2490. And then they do not go on for Glasgow, but for some other port?—It is often the case.

2491. If Portrush was made a harbour of refuge, would it not also be very advantageous for ships coming north-about to have such a place to stop at without running up to Glasgow or Greenock, and to lie there and wait for orders?—Yes.

2492. What is the average number of voyages you make across the Atlantic in the course of a year?—About six voyages.

2493. What proportion of those voyages is north-about and what south-about?—We always go north-about.

2494. What was the longest passage you ever made from the city of Glasgow to Cape Clear, south-about, with a sailing vessel?—I cannot say; I think 14 days.

2495. Admiral *Duncombe*.] I understand that you now command a steamer?—Yes, in the New York trade from Glasgow.

2496. Is it your opinion that a harbour upon the north coast of Ireland is much more desirable on account of sailing ships than steam ships?—For both, but principally for sailing ships.

2497. You have commanded a steam ship going in the North American trade?—Yes.

2498. Mr. *Clay*.] A steam ship would be able to use the present harbours of Lough Foyle and Lough Swilly?—Yes; but the great difficulty is going into them at night.

2499. You have told us you have been in the habit of sailing from Liverpool and Glasgow?—I have sailed from Liverpool round the north channel.

2500. In going from Liverpool that passage, is there any part of the coast of Ireland very dangerous before you reach Belfast?—The South Rock, which lies about three miles off; but there is plenty of room for any ship to navigate there.

2501. With regard to gales of wind, are you much exposed to danger there?—Not much.

2502. From the north-west wind you are sheltered by the land?—Yes, it is off the land.

2503. With a north-east gale there, I suppose you are a good deal sheltered by the opposite coast?—With a north-east gale you take the south channel.

2504. Mr. *Ewart*.] In sailing from Liverpool, where was your trade chiefly; was it Montreal?—I sailed from Liverpool all round the west of Ireland to Quebec.

2505. That was your chief place?—Yes; I was not master then.

2506. The north-about was the nearest?—Yes.

2507. But if you had been going to New York, or to the southward of New York, you would very seldom take the north-about channel?—I would take the north-about channel.

2508. In going to New York, or the southward of New York, you would still take the north-about channel?—Yes.

2509. That is, if you had a north-east gale blowing?—Yes.

2510. But with a westerly wind would you do so?—Even with a westerly wind, I would.

2511. *Chairman*.] Are there many states of the wind from Liverpool, in which you would prefer to take the north channel in preference to the south?—Southerly wind, and south-west.

2512. But with a northerly wind, or north-easterly wind, you would of course take the south channel?—Certainly; there is a head wind going down, therefore we should do so.

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2513. *Chairman.*] YOU are the Engineer to the Board of Works?—Yes.

2514. Have you been long employed in that capacity?—I have been employed nearly 30 years by them.

2515. What department do you fill in the Board of Works?—Engineer for harbours and other works.

2516. Have you had a great deal of experience in the harbour works of Ireland?—A great deal.

2517. Do you know the Skerries at Portrush?—I know every part of the coast of Ireland, intimately.

2518. Do the Skerries present any great natural facilities for the construction of a harbour of refuge?—They do, peculiar facilities.

2519. Will you describe what those facilities are?—From the position of those outlying rocks and islands, with reference to the mainland, the same amount of work at Portrush will produce a greater effect than it would in any other place that I am aware of; and it is more easy at Portrush to reconcile the two antagonistic objects of facility of access and shelter than at almost any place I know.

2520. Do you know the character of the stone and the quality of the quarries in the immediate neighbourhood there?—I do. I know it from experience, for the Board of Works lent money for the repair and extension of the old pier at Portrush, and it came under my superintendence, and the material is of the very best kind; it is basaltic whinstone, rising in large masses, and with a good deal of facility for obtaining it; it is a very solid stone.

2521. Is it easily quarried?—Not particularly so; it will take powder, as we call it, well; it is solid stone, difficult to bore, but the powder acts well upon it; the produce of each blasting is good, because the powder acts with great effect upon it.

2522. Would it be very expensive to procure the material to blast the material?—No, not particularly expensive.

2523. You could get stone of very good sizes for the purpose?—The difficulty of moving would be the limit to the size; you can get them of any size you are capable of moving.

2524. The only limit of size would be what you could move?—Yes.

2525. You have got a plan before you which has been presented to the Committee to-day, which shows the erection of a breakwater between the mainland and the Little Skerries; you observe a pier upon that plan, projected from the mainland to the terminus of the Little Skerries, and joining the different islands which constitute the Little Skerries, and then filling up the interstices between the different islands which form the Great Skerries; have you made any estimate as to the cost which that work would involve?—I have, of what it would cost to do that which is shown upon this chart.

2526. What do you think the amount required would be for those works?—£.100,000 would cover it.

2527. Would cover the whole?—Would cover all that is shown here.

2528. In making this breakwater, what plan would you propose to follow; would you do it with rubble stone?—With rubble stone thrown out promiscuously in the first instance; it would be a mound of rubble stone; then it would become a question whether you would do what they are now doing at Holyhead, build an upright wall, or leave it to the sea to act upon.

2529. You would lay the foundation of the breakwater by rubble stone, deposited from a stage?—Either from a stage or from a heading in the ordinary way that railway embankments are made.

2530. Are you acquainted with Mr. Rendel's plan used at Holyhead?—Yes.

2531. In making your estimate, would it be based upon that plan?—It could be done upon that plan at the price I have stated.

2532. Do you know the plan of depositing rubble which has been adopted by Mr. Abernethy?—No, I do not.

2533. But your calculation is made upon the plan adopted at Holyhead?—Yes; putting it out by piling, so as to execute the work in a short time.

2534. You are aware that the plan adopted at Holyhead and at Portland, is to deposit a large amount of rubble from stages, and then to raise a wall of masonry on the top of the rubble from low-water mark; does your plan include the cost of a wall of masonry on the top?—It does.

2535-



2535. £. 100,000 would do the whole?—£. 100,000 would do that.

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2536. Do you think there would be much danger of the strong north-westerly winds which prevail upon that part of the coast breaking down such a wall?—There would be always danger of a thing that of sort in such a position; it would be always liable to damage; but I do not anticipate any insuperable difficulty in overcoming it. We have evidence of that in this old pier at Portrush, which is not so much exposed as this, but very nearly so.

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2537. Just cast your eye to the Little Skerries, and then to the portion of the Great Skerries nearest to the Little Skerries. That would be the portion of the breakwater which would be most exposed to a north-westerly gale, would it not?—Yea.

2538. Those two portions of the breakwater would lie very much protected apparently, according to the map, by the little islands which would lie outside of the breakwater, would they not?—Certainly.

2539. And therefore if a breakwater were built in the way it is described upon this map, the natural rocks which are placed in both of those situations would themselves act as a protection to the breakwater?—No doubt of it, and diminish the quantity of material most considerably.

2540. Would the protection afforded by the works, being under the lee of these little islands, facilitate the depositing of the rubble?—Most considerably.

2541. They would secure to you stiller water than you could have in the open sea?—Yea, and facilitate the getting down of the piles which form the staging.

2542. This natural breakwater would not only facilitate the construction of this artificial work, but it would also be a great protection to it when it was constructed?—No doubt of it.

2543. Admiral *Duncombe*.] You consider the roadstead of Portrush the most eligible spot for a harbour upon the north coast of Ireland, if I understand you?—I do, for a great many reasons.

2544. If that work were carried out, as shown upon the plan, leaving an opening as shown between the Little Skerries and the Large Skerries, do you consider that the harbour then would be sufficiently protected?—I should not consider it a perfect work, perhaps, merely doing what is shown here, but I consider it would afford most valuable shelter.

2545. But your estimate does not suppose the curtailment of that open space?—No; but at the same time, I do not say it ought not to be curtailed in order to make it a perfect work.

2546. You think it would improve the harbour if that opening were made less?—No doubt, and for this reason; that when this is wanted, as a port of refuge, is when the wind is in the north-west, or two or three points on either side of north-west. Then you do not require a very broad entrance, inasmuch as you have a fair wind to run into the harbour at the time it is most wanted. It is the very opposite of Holyhead in that respect, because it is open to you with a flowing sheet to go in when it is wanted; consequently a smaller entrance is sufficient; the smaller you make the entrance the greater will be the shelter inside.

2547. You think the space enclosed would be sufficient for the increased trade along that part of the coast?—For any increase of trade it would be ample; but the great object would be a place for the vessels to run in when they want it.

2548. From your knowledge of the coast in that immediate locality, would there be any danger of the roadstead filling or silting up?—I do not apprehend any danger of that; the filling up of any place must arise from one of two causes; either by producing still water that holds a quantity of stuff in suspension in it, and then is precipitated. When you make the water that was in motion or in current still, it precipitates that which is held in suspension in it; that is one cause of silting up; that is a very slow and almost harmless thing for many years. The stuff itself is scarcely palpable; it takes a long time before it is dangerous. You have nothing of that sort here, because the water is perfectly clear. Another cause would be the sea acting upon the sandbank and carrying it bodily, and then depositing it under the lee of any structure formed. There is nothing of that sort here; you have no structure here that interferes with sandbanks or anything of that sort; and therefore it will produce no action upon the sandbanks that is not already produced.

2549. The opening between the two Skerries will not have a tendency to fill the roadstead?—I do not think it will have any effect either way.



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2550. Do you think that if that opening were entirely filled up, there would be no tendency to silt up in the harbour?—I will not go so far as that.

2551. The beach is sand?—All along is sand; if that were closed up, an easterly wind acting upon the sand might scour it along and deposit it here.

2552. *Mr. Hassard.*] With the wind to the west and west-north-west, would not the sheltered area be very small under the Great Skerries?—No; if you look at the line at the end of the first breakwater, you will see, with the wind from the north-west, what a large anchorage there is; then again, if you run in here, with the wind from the north-west, and run along this line the sea will come in along here, and will be dissipated in passing between the two points; there is not room to generate a fresh wave. You would not anchor directly in the axis of the entrance.

2553. With the wind north-west and west north-west, there would be very little shelter under the Great Skerries?—Yes, there would.

2554. The reason I ask that question is this, if that was found to be an objection, would it be possible to shift the entrance to the space between the Lesser Skerries and the shore, and close up that opening?—I think that would be objectionable.

2555. There is five-fathom water there I think?—I think it would be objectionable; it would leave the whole place open to the westerly wind.

2556. *Mr. Kendall.*] According to the present plan here, what would be the space between the Little Skerries and the Great Skerries?—About 1,200 feet.

2557. You think that if that space were allowed to remain it would not be a perfect thing. How much of that space would you, if you had your own way, fill up?—I think I would diminish it to the sixth of a mile, about 900 feet; our entrance at Kingstown is 760 feet.

2558. What would be the cost of that extra work?—It would be between 20,000*l.* and 30,000*l.*

2559. Whence do you get the stone with which you fill up the interstices between the islands?—From the islands themselves.

2560. Are they high enough?—Yes.

2561. If you took off what you wanted you would still leave enough?—Yes.

2562. You say 100,000*l.* would meet the whole cost, according to your estimate, supposing you built a wall upon the rubble?—Yes.

2563. What would be the cost without the wall?—Scarcely anything less.

2564. How is that?—Because you would have to use a much larger quantity of rubble; it is a balanced question whether to form the causeway entirely of rubble, or partly by the construction of the wall.

2565. *Chairman.*] The difference would be, whether you raise the breakwater to the whole height necessary for high water with rubble, or whether you complete it from the low-water mark after you have a facility of getting to it at low water, with a wall?—Quite so.

2566. *Mr. Kendall.*] You would have a larger base if you had no wall?—Yes; a larger base and a broader extent of rubble up to above high water.

2567. *Mr. Clay.*] With 100,000*l.* to deal with, how long would it take you to execute this work?—If you adopted the mode which they have employed at Holyhead of running out on piles, it might be done in two years very easily.

2568. The narrowing of the entrance would be a rather longer work, would it not?—Yes.

2569. Will you be kind enough to give me one or two of your principal reasons for saying, as you have said, that the roadstead of Portrush is the best site for a harbour of refuge on the north coast of Ireland?—I do not know of any other place on the coast which combines so many advantages; it stands sufficiently prominent on the coast to be a place easily entered as a harbour of refuge, and you have so much done by nature for you, and you have so great a facility for obtaining material, that I do not know any other place that combines all those requisites upon the north coast. Lough Foyle and Lough Swilly are not available as refuge harbours.

2570. *Mr. Macartney.*] Are you well acquainted with Cushendall Bay?—Do you mean Red Bay?

2571. Yes?—I know it well.

2572. It lies between Belfast Lough, which is a natural harbour of refuge, and the Skerries?—It does.

2573. Are there any facilities there for making a harbour?—Very great.

2574. Could

2574. Could you get material there?—Abundant.

2575. Would that be applicable to the Clyde traffic to the same extent as Portrush?—It would not be applicable for the purposes that make the harbour at Portrush desirable.

2576. Why?—I look upon it that the great value of the harbour at Portrush is to the outward-bound trade of the Clyde and Liverpool; for example, a vessel comes from Liverpool with a south-south-east wind, we will suppose, which is quite a free wind down the Cheshire coast, and arrives at Holyhead; she cannot go down Channel then, and if the captain has made up his mind to go south-about, he goes into Holyhead Harbour, and of course incurs delay. If he wanted to go north-about, it would be a fine free wind the whole way for him, when he could not attempt to go up the coast of Wexford to the southward.

2577. Consequently, you give the preference to Portrush as a valuable port for Liverpool and the Clyde, under those circumstances?—Yes; Portrush would be a halfway-house for them.

2578. Mr. Hassard.] In speaking of narrowing that entrance, you referred, I think, to the Kingstown Harbour?—Yes.

2579. Have you ever heard any complaints about that entrance being difficult of access with a heavy sea, and the wind at east-north-east?—No, not difficult of access at all; the entrance at Kingstown is quite facile and straight, with the wind east-north-east; you go in quite free with a square-yard; the objection is the other way, that there is too much exposure.

*William Dargan, Esq., called in; and Examined.*

2580. *Chairman.*] YOU are a very extensive Contractor for Public Works? *W. Dargan, Esq.*  
—I have been, and am so still; not so much so as formerly.

2581. You are well able to speak to the rate at which public works can be performed in Ireland, are you not?—Yes.

2582. Are you well acquainted with the Skerries?—I am.

2583. Have you frequently been there?—I have been frequently there.

2584. Did you ever project any breakwater at the Skerries?—The Skerries, from the first time I noticed it, and from the conversations I have had with seafaring men, it has appeared to me to be a place extremely suitable for that purpose, from the natural facilities there are for the creation of a harbour; and from its position, and according to the opinions expressed to me by seafaring men, I have always had a desire to see a harbour established there. There is also another advantage for the construction of a harbour, which is very great, namely, that the material upon the spot is excellent; it is convenient, and not very difficult to quarry.

2585. You know the nature of the stone very well?—I do, perfectly.

2586. What is the stone?—It is basalt whinstone.

2587. That is a stone which is very durable?—Perfectly durable.

2588. The supply is very large?—It is amply sufficient for anything that could be required.

2589. The situation of it would be convenient for the works that are projected upon this map?—It is quite convenient. This is all high land, and it is all rock immediately below.

2590. Am I to understand you to say that you yourself projected a work at the Skerries?—Yes.

2591. Was the work that you projected similar to this which is laid upon this plan?—As nearly as possible; it has been improved by the advice of Sir James Dombrian and Mr. Gibbons, and other people of better experience in harbour works than myself.

2592. In point of fact, the character of the Skerries in their relation to the neighbouring coast, points to this as being almost the only plan that could be adopted?—Entirely so.

2593. It is using the rocks which constitute the two Skerries for the largest portion of the breakwater?—It is.

2594. With your great knowledge of the cost of works in Ireland, are you able to give an opinion to the Committee as to what the cost of those works would be which are laid down upon the plan before you?—I am enabled to do that, inasmuch as, even independently of Mr. Gibbons who was before you, I have made an estimate myself; it would come to about 94,000 *l.* But there is a

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contingency,

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contingency, of course, which always arises about buying quarries and buying land; I think 94,000 *l.* is about the value, but I think 100,000 *l.* about the probable covering sum to make a perfectly secure and safe estimate.

2595. Would you be willing to undertake the contract for 100,000 *l.*?—I would be quite willing to undertake that contract for 100,000 *l.*; and further, to give security for its maintenance for any reasonable length of time. I am so satisfied as to the place itself, and the admirable quality of the material.

2596. Then the 100,000 *l.* would include the contingency to which you have referred?—Yes, it would.

2597. In what time would you be able to accomplish it?—I think in three years.

2598. Would you be willing to take a contract to perform it in three years?—Certainly; but it must be borne in mind that every 5,000 *l.* spent, or probably every month that the work would be in progress, would be increasing the protection and facilities for vessels entering the place, so that if the refuge were but small that was first required and were to increase, we should be able to make provision for it from the first day it was started.

2599. With a view to make the works available for the public as early as possible, you would commence first the pier from the land, and then proceed with the junction between the islands called the great Skerries?—Yes.

2600. When you had got a pier made from the land that would of itself form a considerable protection from the north-west wind?—Yes.

2601. A vessel coming in through that opening could turn round and take shelter under the little Skerries?—Yes.

2602. As soon as you had got that work done, it would form a harbour described as a straight line from the little Skerries to the shore?—It would.

2603. A vessel coming in through that opening could turn round and take shelter under the little Skerries?—Yes.

2604. As soon as you had got that work done, it would form a harbour described as a straight line from the little Skerries to the shore?—It would.

2605. How long would it take to perform that part of the work?—It would take a year.

2606. What portion of the whole sum of money would be expended upon that?—I daresay it would be about 50,000 *l.*, that is the heaviest portion of the work.

2607. But that is only half the whole sum?—It would be very nearly half in quantity.

2608. Surely much more than one-half of the entire work would consist in this pier between the land and the little Skerries?—It would be more than one-half; not much more.

2609. If you look to the portion of the work upon the great Skerries, which is marked upon this map as connecting these islands, it is very small as compared with the part between the shore and the end of the little Skerries. In the answer you have given, do you mean merely the breakwater from the shore to the commencement of the little Skerries?—Yes.

2610. Not including the length of the pier as marked here to the further end of the little Skerries?—No, but even that much carried out would give considerable shelter.

2611. The little Skerries themselves naturally give some shelter?—They give some shelter; the water that comes through them is broken, and though the harbour would not do with them as they are at present, still they are a great protection.

2612. Admiral *Duncombe*.] In carrying out this work, if it fell to your lot to do so, of what material would you make the breakwater?—I would make the breakwater entirely of rubble, with a faced wall at the top.

2613. Rubble up to low-water-mark, and then a faced wall at the top?—Yes.

2614. And that can be done for the sum you have named?—Quite.

2615. And when you come to work upon the large Skerries, would you use the islands or rocks themselves for part of the work, or would you transport the material from the land?—I would not conceive it necessary to put any wall upon that, I think merely rubble.

2616. But do you think that with safety a sufficient quantity of material might be taken from the large Skerries for that part of the work connected with them?—I do.

2617. One witness has stated to the Committee, that in his opinion, you ought not to diminish the height of the large Skerries?—I do not think it would in the remotest

remotest degree injure the protection as a breakwater, if there were 20 feet taken off there. *W. Dargan, Esq.*

2618. Mr. *Macartney*.] I believe at present there are railways from the east and west, communicating with Belfast, Derry, Enniskillen, and so on southward to Dublin?—Yes; the communication is complete. *25 March 1858.*

2619. Is there a telegraph also?—There is a telegraph down to Portrush.

2620. You have, for a considerable number of years, been in the habit of residing a good deal at Portrush?—I have been going backwards and forwards there.

2621. Have you ever seen vessels driven in there for shelter in a gale of wind?—I have.

2622. Are there not a considerable number of vessels that avail themselves of the Skerries during neap tides until they can go up the river to Coleraine?—There are a good number considering the trade of Coleraine; nearly the whole of them touch there.

*Lunæ, 12<sup>o</sup> die Aprilis, 1858.*

MEMBERS PRESENT.

Mr. Baring.  
Mr. Clay.  
Mr. Dodson.  
Admiral Dancombe.  
Sir James Elphinstone.  
Mr. Joseph Ewart.  
Mr. J. H. Gurney.

Mr. Hassard.  
Lord John Hay.  
Mr. Liddell.  
Mr. Philips.  
Mr. Augustus Smith.  
Sir Frederick Smith.  
Mr. Traill.

THE HONOURABLE HENRY GEORGE LIDDELL, IN THE CHAIR.

*James Walker, Esq., C.E., called in; and Examined.*

2623. *Chairman*.] YOU are a Civil Engineer?—I am.

2624. You have been president of the institution of civil engineers, I believe, for some time?—I succeeded Mr. Telford as president, and remained president for 10 years; I was elected the 11th, but declined to serve longer.

2625. You have been employed extensively by the Admiralty and others in the construction of various harbours; will you describe in what work you have been employed by the Admiralty first?—I am now employed by the Admiralty in the superintendence of the Admiralty works at Dover, at Plymouth, at Alderney, at Jersey, and Harwich; perhaps I may add also the Humber, as connected with the Spurn Point.

2626. You have been extensively employed by other parties in works of a similar description?—Yes; and am now.

2627. Were you a member of the Royal Commissions for Harbours of Refuge in the years 1840 and 1847?—I was, and I believe I was the only individual who was a member of both Commissions.

2628. You have been consulting engineer for Yarmouth Harbour for some time, I believe?—Yes, for about 30 years.

2629. You have been lately consulted as to the capabilities of Yarmouth for the formation of a harbour of refuge?—I have.

2630. You have reported your opinion in writing upon the capabilities of the harbour?—I have.

2631. To whom was that addressed?—It was addressed to the clerk of the Commissioners, and also to the clerk of the Corporation of Yarmouth. I was employed by both parties.

2632. Have you a copy of that report in your possession?—I have, in my hand now.

2633. Will you hand it in, if you please?—I will; it is dated the 16th of March 1858 (*handing in the same*.) I beg leave to say that this report contains the whole of my opinion as regards the capability of Yarmouth Harbour, and if it be the object of the Committee to ascertain what that is, it will be done perhaps.

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Esq., C.E.*

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*Vide Appendix.*

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haps in a shorter time by my reading this report (and then Honourable Members can make any observations upon it) than by putting a series of questions.

2634. I think there are two or three leading questions which I had perhaps better first put. What are the nearest harbours of refuge to Yarmouth?—The nearest on the south side is Harwich, and on the north side the Humber.

2635. Are you acquainted with the existing harbour at Harwich?—Yes; I had the honour to act as the engineer to the Admiralty in the deepening and improvement of Harwich Harbour; that is now finished.

2636. You are acquainted with the coast in the neighbourhood of Yarmouth; it has been stated that it lies in the general track of vessels; can you form any estimate of the number of vessels that pass annually through the Roads?—My estimate is all derived from information received from others; I have not any of my own knowledge, but I have the information from undoubted sources; the number of vessels that pass the Roads daily is several hundred.

2637. Will you first state from what source you obtain that information?—From Captain Smyth, the harbour-master, a captain in the Royal Navy, and from Mr. Preston, who has been clerk to the commissioners for many years; I have no doubt of the facts, but I thought it right to state the source to the Committee; the number that have been known to pass the Roads in a day has been as many as 2,000, the annual number is 40,000.

2638. Is the average tonnage of these 40,000 vessels computed in your calculations?—Yes.

2639. What is the amount of that tonnage?—The aggregate tonnage is 5,200,000 tons.

2640. Have you any estimate of the average tonnage?—It varies from 100 tons to 800 or 1,000 tons.

2641. What is the nature and character of the navigation along the coast between Yarmouth and the port of London?—It is, as is well known, a very difficult navigation, on account of the sands which are everywhere spread across the length between the mouth of the River Thames and Yarmouth, ships are guided through that channel I may say entirely by the lighthouses and beacons which are under the corporation of Trinity House, to which I am the engineer.

2642. In what trade is the greater portion of these vessels engaged?—The greatest trade between London and the north is in coal.

2643. Can you state what proportion that particular branch of the trade bears to the whole amount of vessels passing?—I have no information upon that point.

2644. Do the facts detailed to you render a refuge harbour for vessels upon the east coast important?—They do; and I think the facts which I have just stated, prove this; that is to say, the very great trade which now frequents the Roads, and the difficulty of communication between the Thames and the Norfolk coast, renders a harbour of refuge, particularly at night time, very desirable.

2645. Have you considered the position of the sands which form the Yarmouth Roads, with a view to whether Yarmouth presents an eligible situation for a subsidiary shelter for vessels?—I have.

2646. Have you any report, or any knowledge of the number of vessels wind-bound in Yarmouth Roads, which are at times riding at the same moment?—Yes; there are occasionally from 1,400 to 1,500 sail of wind-bound vessels at one time.

2647. Have you any specific data upon which that number of vessels is known to have been riding there?—There are data, but not in my possession. Captain Smyth, if he appear before this Committee, would be able to produce them.

2648. Will you state what the entrances to the Yarmouth Roads are, and for what class of ships?—The entrance on the south-east is Hewett's Gat, and on the north Cockle Gat.

2649. Will you describe in general terms the roadstead, its extent and capacity?—The roadstead is nine nautical miles in length, and the average width is one mile and a quarter; the area with three fathoms water is about 10,000 acres, and with not less than four fathoms, about 9,000 acres.

2650. What is the nature of the anchorage ground?—The anchorage ground in the Roads is very good generally; of a clayey nature; good holding ground.

2651. What is the natural protection afforded to these Roads?—The Scroby and the Corton Sands.

2652. This is a long sandbank (*pointing to the chart*)?—Yes; about 15 miles in length.

2653. What

2653. What is the length of the Scroby Sands?—The length is about 9 miles but the sands extend to and in front of Lowestoft; in front of Lowetoft is Lowestoft Roads.

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2654. Can you state the importance of Yarmouth roadstead in a national point of view, with reference to a rendezvous for Her Majesty's ships of war?—I can only state from history and information that in 1797, Duncan's fleet, before the battle of Camperdown rendezvoused there; that the Baltic fleet again mustered there in 1801; Gambier's fleet in 1807; and Saumarez's fleet in 1812.

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2655. To what extent are the Yarmouth Roads a refuge at present, and what besides chiefly affects the refuge there?—With gales ranging from north-north-east to south-south-east, which are the worst, the Roads are not a perfect refuge.

2656. So that in a north-easterly gale or a south-easterly gale they are not a safe riding place for vessels?—They are not quite secure, particularly with small vessels, which are very often badly found in ground-tackle; but for a large ship, well found, or one of Her Majesty's ships, a man-of-war, I apprehend they are a complete shelter; they are not secure, however, with small vessels, for a reason which will be evident, that the sands are not above the level of high water.

2657. Looking at the large number of vessels that occasionally congregate in this roadstead, is much danger to be apprehended from collision?—There is danger with small vessels, and there is also danger when a vessel is obliged to run from her moorings of being driven against other vessels, from which and other causes the damage now received in the Roads annually is very considerable.

2658. Have you any statement of the annual amount of collision that takes place in the roadstead?—I can state the number from a paper just handed to me by Mr. Cory, the town-clerk. In one gale, in 1819, 50 sail were driven ashore. The total number of vessels stranded and wrecked in the three last years off the coast was 554.

2659. You do not state that of your own knowledge?—No. I have been stating a good many things not of my own knowledge, but I believe the information to be correct. I have no doubt as to this.

2660. Have you considered any plans for a breakwater in Yarmouth Roads, with a view to making them more efficient as a harbour of refuge?—I have considered, I think, all the different plans which have either occurred to me, or which have been suggested by others.

2661. Have you any plan there of your own for that purpose?—Not for any improvement in the Roads; I do not consider that at any moderate expense, compared with the object, anything could be done in the Roads to improve them; they are now about the best roadstead in England; and in my opinion, as regards the roadstead, Yarmouth must be satisfied to take it as it is, and that to be useful their attention and the attention of this Committee must be directed to the improvement of the harbour and its entrance, so as to make it a useful auxiliary harbour to the Roads.

2662. Then, in your opinion as an engineer, it would not be practicable to render this roadstead safe for small vessels in certain gales upon that coast?—Not more safe than it now is, at any moderate cost, and at present it is not quite secure; the reasons for my giving an opinion unfavourable to any money being laid out on Yarmouth Roads, are very fully described in my report now before the Committee.

2663. Will you describe to the Committee the precise position of Yarmouth Harbour in reference to the Roads?—The entrance of Yarmouth Harbour lies nearly opposite to the middle of the Roads.

2664. Are you prepared to state upon reliable evidence what the number of vessels annually using this port of Yarmouth is?—I presume the question refers to Yarmouth as a port of commerce.

2665. The question refers particularly to Yarmouth Harbour?—Two thousand seven hundred merchantmen use the port yearly.

2666. What is the number of fishing vessels that use the port?—Six hundred and twenty-six.

2667. What is the tonnage of the merchant vessels?—Two hundred and twenty-five thousand tons.

2668. What is the tonnage of the fishing vessels?—Twenty thousand.

2669. What number of hands is employed upon the fishing vessels?—About 5,000.

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2670. What

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2670. What is the depth at present at and near the entrance of the harbour of Yarmouth?—The depth at low water is  $9\frac{1}{2}$  to 10 feet.

2671. Consequently it is not available for any but vessels of a very small size?—Not at low water.

2672. What are the winds to which the mouth of this harbour is exposed?—The easterly wind is the worst for it, because it is directly into the mouth of the harbour.

2673. The east wind sets dead into the mouth of the harbour?—Yes.

2674. Is there any shelter whatever at any point to the mouth of the harbour?—No shelter but what is afforded by the sands, which are two miles distant, and at high water, not only does the sea come over the sands, but there is a considerable send between the sands and the entrance of the harbour.

2675. These sands are not covered entirely at high water, I believe?—Yes, they are all covered, I believe, at high water. The depth over the sands at low water varies from nothing to 12 feet, and the lift of tide is 6 feet, making the average depth at low water 6 feet, and at high water 12 feet.

2676. You have stated the depth at low water at the mouth of the harbour to be from  $9\frac{1}{2}$  to 10 feet?—Yes.

2677. Is the depth of the harbour capable of increase?—I think it is. When I was first engaged for Yarmouth Harbour the depth upon the bar varied from 2 to 6 feet, and was very variable. The depth now is, as I have already said, from  $9\frac{1}{2}$  to 10 feet, and there is scarcely any bar or variation in the depth.

2678. Then that is in consequence of the improvements which have been effected in that harbour under your superintendence?—Yes. My opinion, therefore, both theoretical and practical, is this, that the same means applied to a greater extent than the Commissioners have been able to do, on account of want of funds, would to an equal proportion increase the depth and the capability of the harbour, and make it an important and useful auxiliary to the Roads.

2679. Will you state shortly what the expenditure has been which has been productive of the improvement that you have described?—Thirty-two thousand pounds. This applies, not only to the entrance, but to the improvement of the river, from the entrance towards the town of Yarmouth.

2680. I presume you would not anticipate a similar amount of improvement to the harbour, by the further expenditure of a similar sum?—I should not.

2681. That would cost more?—Very considerably.

2682. What estimate have you formed in order to make the harbour available for ordinary sized coasting vessels drawing 15 or 16 feet?—I have not been asked by the Commissioners to prepare any estimate, and I have a great aversion to making any guess; but it would be a very considerably larger sum than the sum which they have already expended. I would rather you would not press that question. It depends very much upon the state of the old piers, how much of them wants renewing. I think I have said that an addition might be made to the depth, equal to that which has been already obtained,

2683. There is a piece of water termed Breydon Water, in the neighbourhood of Yarmouth Harbour; will you describe what that is?—It is a very large pool or mere, in which the tide ebbs and flows daily, through which the waters of the Yar and the Waveney pass, and which forms, in fact, the lungs of Yarmouth Harbour.

2684. Then Breydon Water is of great importance to Yarmouth Harbour?—Yes, of immense importance. Without Breydon Water, there would be very little Yarmouth Harbour.

2685. Is the usefulness of Breydon Water capable of being largely extended?—I do not think the area is capable of being largely extended.

2686. What is the area?—I think 1,200 acres. Captain Smyth, the harbour-master, has so stated. But I ought to add, that the depth of water may be much extended, which is more important than the area, the depth of the tide ebbing and flowing through it.

2687. You have stated that in your opinion, as an engineer, such an extension of the present works might be effected as would render Yarmouth an available harbour as a harbour of refuge; will you describe what the nature of those works would be?—The works would be almost a continuation upon a larger scale, and of the same nature as those I have already executed there, which are deepening and regulating



regulating the channel of the river, so as to allow the tide to come up more freely into Breydon, and extending the piers also, particularly the north pier, and making a groyne from behind the piers, so as to prevent the direct action of the easterly winds at the mouth of the harbour.

2688. To what distance do those piers run out from the mouth of the harbour at present?—The plan before the Committee will show this; it is about a quarter of a mile.

2689. What is the distance from the mouth of the harbour to the sand?—About two miles, opposite to the entrance of the harbour.

2690. Would you recommend any works for improvement within the harbour?—I should; I recommend regulating the lines of the harbour on both sides, from the entrance upwards to the town; there is a considerable obstruction now to the flowing tide by the irregularity of the channel through which it goes, so that when the lift of tide is six feet at the entrance it is only two feet eight inches opposite the town, a distance of only two and a half miles; it is almost unnecessary to say that there must be some great obstructions to cause such a difference of lift of tide in so short a length. Now if this difference, in place of being two feet eight inches, could be made, even say four feet six inches, that would add a difference over the whole extent of Breydon, and increase very much the quantity and velocity of the water passing from Breydon out to sea. I have supposed that the increase of depth at the entrance would be from four to five feet; I think that not at all improbable; and if this were effected, there would be from 14 to 16 feet at low water, and 20 to 22 feet at high water, which would make Yarmouth a very important public harbour, that depth being more than Her Majesty's small vessels require, even at low water.

2691. In your opinion, could the works capable of producing those great effects which you have just described be constructed at a moderate cost?—I think they would be moderate as regards the advantage to be derived from them; but the figure would be large. The four feet which have been obtained already cost 32,000 *l.* The Honourable Chairman has stated correctly that to get another four feet would cost a much larger sum.

2692. You prefer not to give the Committee any idea of what the cost of the construction of such works would be?—If I could do it I would readily; but it must be a guess; I will give a guess, if you please. I dare say it would cost very nearly three times the amount to get four feet additional at the piers; because, if the piers were made so as to stand with only four feet at low water, and we had 14 or 16 feet at low water in front of them, we should require deeper piers, so that probably the piers themselves would require great repair; but I would say, (supposing the cost were 100,000 *l.*.) it would be 100,000 *l.* well laid out, considering the vast trade and the vast importance of the roadstead, especially if I am correct in saying that nothing could be done in the roadstead. I need not add that what I am saying is very much at variance with the opinions entertained by many of those connected with the port of Yarmouth.

2693. Admiral *Duncombe*.] I understand it to be your opinion that the Yarmouth Roads are perfect as far as they go, so that the Government would not be justified in expending so large a sum of money as would be necessary to increase the safety of the roadstead?—That is my opinion.

2694. Consequently your evidence chiefly bears upon what we may call the harbour of Yarmouth?—It does, as connected also with the roadstead.

2695. We will call it an auxiliary harbour of refuge?—Yes.

2696. I understood you to say, that from the lighthouse to the town of Yarmouth, is about 22 miles?—Yes.

2697. And about another mile from there to the entrance of Breydon Water?—About that; not so much.

2698. Does your plan propose to interfere at all with Breydon Water; do you contemplate deepening Breydon Water?—In the guess estimate I gave, I did not contemplate deepening Breydon Water, I was confining myself merely to the river and the entrance of the harbour.

2699. What is the width of the river at the present moment between the piers and the town?—It is very various.

2700. It is narrow, is it not?—It is narrow; perhaps 100 yards.

2701. Do you contemplate widening that or merely deepening it?—Deepening it, widening the deep water, and regulating it; making places which are



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very wide narrower, and those that are very narrow wider; but the whole may be widened generally.

2702. You mean regulating the course of the tide so as to strengthen as it were the river, and keep the river freer from accumulating mud or sand?—Yes, keeping it uniform; the same thing as is now doing in the River Clyde, of which the effects are well known. The Clyde is also being widened.

2703. And when those improvements have been completed, at a rough expenditure as you say of 100,000 £., would it be available for more than the coasting trade?—It would be available for all small war vessels, which could enter the harbour at all times of tide; gunboats and anything not drawing more than 16 feet of water. The honourable admiral knows that 16 feet, which there would be even at low water, is the draught of a vessel of considerable size, and I have supposed 20 to 22 feet at high water.

2704. Then, in deepening the river, you conceive that an expenditure would be required upon the north and south piers, inasmuch as they would require what builders call underpinning?—Just so, or perhaps taking down a part; I cannot answer that, because I have not been called upon to look at it minutely; but it is the idea of some part requiring to be taken down that makes me name so large a sum.

2705. Mr. Hassard.] If you look at the bottom of page 6 of your pamphlet, you will find it states that there are 9,000 acres of area, of not less than four fathoms of water; and in page 9, I think you state that there are five fathoms at low water; is there much of the present Yarmouth Roads with five fathoms at low water?—Yes.

2706. If you look at the bottom of page 6, you will see that it would lead one to suppose that there was none deeper than four fathoms?—The word is “not less.”

2707. There is a considerable portion much deeper than that?—A considerable portion; the greater portion is more than twice that depth; just about the middle of page 9, I have said that while the depth in the Roads is not less than 30 feet at low water, it is generally twice that depth; I stated the great depth as one of the objections to expending money in the roadstead.

2708. You do not contemplate that the harbour could be made available for vessels drawing more than 22 feet?—No, I do not, without a very heavy expense; that is my opinion; money will do great things, and from the Government aid we might get more, but I do not think with prudence I could calculate upon more. The Clyde has been deepened from 5 to 18 feet in places.

2709. Is there much area of available anchorage inside the harbour?—Yes; there are two miles between the town and the entrance.

2710. What width is that upon the average?—About 100 yards.

2711. Is that all an area that is available for anchorage?—That is the present width. There might be docks or basins, and the river might be widened.

2712. Is there any difficulty in a vessel getting up that channel; for, in looking at the chart, there appears to me to be a very sudden bend to the north?—There is; that is one of the evils of it.

2713. Do you propose to obviate that in any way?—To improve it, but not to remove it entirely.

2714. Suppose a vessel to take refuge in this harbour with the wind at east, or east-north-east, and to run in, would she require to be tracked up that channel?—If the wind were very heavy, a very severe easterly gale, she would, but if it were not severe, she would not, because with a flood tide she would have a strong current up with her; but there is a difficulty in it from the vessel not answering her helm in going up along with a strong current.

2715. But she could not work up that channel, even with a flood tide, with certainty?—No.

2716. I think in your pamphlet you lead us to suppose that the estuary of Breydon Water does not fill up at high water now, in consequence of the obstructions to the water rushing in?—It does not cover so great an area, but the increase of area would not be so great by the improvement as the increase of the depth.

2717. But do not you attribute the keeping of the channel open to the difference of level between the water inside and the water outside, and the strong race caused by that?—I do.

2718. If

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2718. If the channel were deepened do you think any injury would be sustained by a diminution of the strength of the current rushing in?—No; the current would not, perhaps, be greater than it is now at the narrow parts, but it would be greater at the wide parts.

2719. Would not diminishing the difference of level diminish the strength of the current?—Diminishing the difference of level would increase the strength of the current, and would be bringing Breydon to nearly the same depth as the entrance now, the one being at present 6 feet, and the other only 2 feet 8 inches; the smaller you make that difference the more you increase the velocity.

2720. Your pamphlet states that the tide rises 6 feet outside and rises but 3 feet 4 inches inside; so that, of course, there is a gradient of 2 feet 8 inches over which the water must run?—Yes.

2721. If the tide were caused to rise four feet six inside that gradient would be diminished?—Yes.

2722. Would the velocity be diminished?—No, the velocity would be increased, because there would be a greater vacuum to fill up; at present Breydon is only supplied with 3 feet 4 inches of water.

2723. You mean by the extension of the area of Breydon, which would be filled up?—Yes; the depth of it.

2724. Mr. *Augustus Smith*.] You spoke of the openings into the outer roadstead of Yarmouth, and their being liable to shift, change, and fill up; have you any suggestions to offer by which anything could be done to render the shiftings and fillings-up less liable to take place?—I do not remember in my examination to have said anything like that to which the Honourable Member refers, but there is a general tendency, no doubt, to changes in the entrances at both ends, and in the sands; I have, however, nothing to suggest, nor do I believe that anything can be suggested that would improve that.

2725. You have been acquainted, I believe, with these sands a great many years?—All the while I have been engineer to Yarmouth Harbour; that is 30 years.

2726. What particular changes have you observed in the course of that time in the outer banks?—No practical change of great extent; the sands have moved; they have shifted out and in considerably, but I believe the entrances have never been better than they are now; Captain Smyth, who has been for many years the harbour-master, and who has watched these sands with great care, can give the Committee correct evidence upon that subject, if it is desired.

2727. Have you observed that there is a sort of general tendency to shift to the south?—No, I do not know that that is so; the south entrance now is very good.

2728. You spoke of the bar being formerly only between 2 and 6 feet, what, at that time, was the depth in the harbour?—The depth in the harbour was somewhat greater; I have not the soundings, but it was somewhat greater after passing the bar.

2729. But what was the depth of the harbour before the bar was lowered?—It varied very much; very much more than it does now. The depth in the river was not less than six feet.

2730. Now the bar is lowered, so that you have a depth on the bar of from 9 to 10 feet, what is the depth in the harbour?—Ten feet to 11 feet.

2731. Then the effect has been to deepen the river?—Yes, all the way up to the town.

2732. Was it a bar of sand, or what?—Sand chiefly.

2733. What was the nature of the soil under the bar?—The bed under the bar is, I believe, clay. The roadstead is clay; but there is a depth of sand now over the clay in the entrance.

2734. But has the increase of the stream which has been effected lately worked away the substratum of the soil?—No, it does not reach the substratum.

2735. That would have, then, to be dredged by art?—Yes; but if the sand goes lower than the depth I have now named, the velocity of the water would take it away.

2736. Have you any facility for forming a backwater above the Breydon Water?—Not such as at present I can recommend or make so as to increase the Breydon Water.

2737. There is no backwater higher up than the Breydon, which might be

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used occasionally so as to flush the channel to deepen it?—It could not be done, unless it were to add to the quantity of water contained in the Breydon; the quantity would be too small to produce a practical effect.

2738. Mr. J. H. Gurney.] The vessels to which the improvements in Yarmouth Harbour, which you propose, would be of use, are chiefly those vessels which have incurred damage during the time that they have been anchored within the roads?—As a harbour of refuge; that is what I refer to.

2739. As a harbour of refuge, that is what I refer to?—That is to say, a number of vessels being now in the habit of anchoring in the roads in difficult weather, and incurring risk still while they are in the roads, would obtain safety from that risk by being able to run up the mouth of the river, if those improvements were made which you suggest?—That is my opinion.

2740. To what extent would you propose to prolong the present piers at the mouth of the river?—The further they are prolonged the better; that must be dependent upon the amount that it is resolved to spend upon them. I should say 100 yards to the north pier would do good, and 200 would do more good. But in addition to the north pier, and somewhere to the north of the north pier, an arm or groyne should be formed which would shut off and confine the heavy easterly seas from raging into the mouth of the harbour as they do now; a sort of outer harbour.

2741. Assuming that the improvements which you suggest were carried out, are you of opinion that all vessels which would require assistance being within the roads would be able to obtain assistance, and to run within the piers for that purpose?—If the honourable Member confines the question to all vessels, I should say decidedly not.

2742. Have you formed any opinion as to the proportion of vessels which would be able to avail themselves of its shelter?—No, I have not. I have no doubt that they would be numerous, but I cannot say the proportion, because when they part from their anchors, and things go wrong with them, they are driven upon the shore without being able to reach the harbour.

2743. Are you of opinion that a sufficient proportion would be able to avail themselves of the harbour to make the improvements highly desirable?—Yes.

2744. Has it formed any portion of your plan to make a basin upon the low land adjacent to the mouth of the river within the piers?—I have contemplated such a thing, and I have no doubt if the Admiralty vessels, war steamers of small draught, were to frequent this harbour, it would be desirable to have a basin just such as the honourable Member, late a Lord of the Admiralty, knows was proposed at Newhaven.

2745. But any such basin would be an additional cost to the rough estimate which you have given us?—Yes, it is a very rough guess; it must not be called an estimate.

2746. You are acquainted with the character of the coast for some miles northward along the Norfolk coast, opposite the sands, probably?—Yes, generally I am.

2747. Have you happened to have had your attention drawn in any of your surveys there, to the point between Winterton and Horsey, where there was formerly a mouth of the river Bure?—No, not particularly.

2748. You have not formed any opinion as to whether there is any facility for works in the character of a harbour of refuge at that point?—I have not. What I understand by the character of a harbour of refuge is something in the nature of a great public harbour, and I am sure that was the opinion of Sir James Gordon's and of Sir Byam Martin's commissions, that unless the thing could be done upon a very large scale for a new harbour, the public money would not be prudently expended in making such.

2749. But at the same time the works which you propose at Yarmouth are works of a sufficient magnitude to take in the class of vessels which usually frequent that coast?—Yes.

2750. And which are not of the larger class?—Which are not of the larger class.

2751. When you spoke of there being no harbour of refuge south of Yarmouth, nearer than Harwich, I suppose you alluded to the class of vessels that take refuge at Lowestoft, being of a smaller class?—Yes; in Lowestoft Roads the smaller class of vessels do take refuge now.

2752. And also in Lowestoft Harbour?—I have never heard of Lowestoft Harbour

Harbour being used as a harbour of refuge, unless for vessels of small draft. There is much better evidence as to what Lowestoft Harbour is than I can give. I believe they mean to present their case before the Committee.

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2753. But in saying that there was no harbour of refuge nearer on the south of Yarmouth than Harwich, you did not mean to deny the fact of a certain class of vessels taking refuge in Lowestoft Harbour?—In the Lowestoft Roads.

2754. You are not then cognizant of the fact of such vessels taking refuge in the Harbour of Lowestoft?—I am not, but the fact may be so.

2755. You do not mean to deny the fact, but merely that it is a point of which you are ignorant?—I do not deny the fact that vessels may take refuge of a smaller class in Lowestoft Roads or Lowestoft Harbour; and in saying that there was no harbour of refuge between the Humber and Harwich except Yarmouth, I spoke generally; I did not mean to exclude what is called Lowestoft Roads, which in fact is a continuation of what is called Yarmouth Roads with less depth, and with less depth of entrance to the Roads.

2756. Mr. Baring.] When you speak of Yarmouth Harbour, do you refer to the river, or to the part above the river?—I refer to the river entirely, all below the town.

2757. That river I think you said was about 100 yards across?—Yes, about that, but the width may be increased.

2758. Do you contemplate the possibility of mooring vessels in a channel so narrow?—It would be necessary to moor them head and stern alongside, or in basins or recesses.

2759. What sized vessel could you moor in a channel so narrow, without obstructing it?—You might moor a vessel of 800 tons.

2760. Without obstructing the channel?—Without obstructing it, certainly, you might moor a vessel of 35 feet beam; but suppose even a larger vessel than that; suppose a vessel of 1,000 tons, the beam of such a vessel may be perhaps from 35 to 40 feet; that is only taking 40 feet out of 270, or 300, the present width. The Clyde at and near Glasgow, will, when widened, be 400 feet wide.

2761. How many vessels could you moor in the river, do you calculate?—The length of two miles would enable a great many to be moored if they were put in single berths.

2762. You would have of course to use steam-tugs to bring the vessels up?—Not always; but in strong easterly gales they would be required; steam-tugs are there, as the honourable Member knows; almost every harbour now has steam-tugs.

2763. What depth of water is there in Breydon Water?—Four feet.

2764. In the rough estimate you have given you have taken nothing for deepening Breydon Water?—I have not.

2765. Or for forming a basin at the entrance?—No, beyond what I have stated.

2766. You rely entirely upon the river channel as a harbour of refuge?—Yes, and with docks and basins out of it.

2767. You stated it might be very useful for small Government vessels?—Yes.

2768. Have not the Government got Harwich, where there is a greater depth even now, at low water, than you would give to Yarmouth by the proposed alterations?—They have.

2769. Within a very short distance?—Within 50 miles.

2770. Is it ever the case that a vessel of war cannot ride in Yarmouth Roads?—No; I believe not, but she suffers wear and tear in the Roads, and is liable to be run against.

2771. She always can ride there?—She always can.

2772. Lord John Hay.] I think you say that you look to the harbour to take vessels which might have to run in a north-east gale out of the Roads for shelter?—Yes.

2773. A good many vessels would have to run for shelter about the same time?—It might be so.

2774. You said that they would be taken up the river by a steam-tug?—I said, occasionally they would require to be tugged.

2775. In case it was necessary?—Yes.

2776. Do you think there is room at the entrance, and before you come to the bend of the river, to put a number of vessels coming in one after the other?—Not a great many; they would lie there uncomfortably, because vessels coming in after them might run foul of them.

2777. You know the distance between the edge of the bank and the bend of the river?—Yes.

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2778. Do you think there would be sufficient room there for a number of vessels to run in with a north-easterly gale, and to wait until a steamer towed them into their berths up the river?—No; I think not room for a large number of vessels; neither would they all want to take a steamer; I said a steamer would be taken occasionally; the old saying is, “Any port in a storm,” and when vessels are in distress in the Roads, the best remedy I can suggest is to improve the harbour and its entrance as an auxiliary to the Roads.

2779. With reference to the number of vessels which could take advantage of this harbour, large vessels going within the Roads and being obliged to get under weigh and run into the harbour, do you think that a fifth of the number of vessels in the Roads would be able to run into that harbour?—That is a speculative question, which I should be sorry to give an answer to; it must depend upon so many various circumstances, such as the wind, the state of the tide, and other things.

2780. Would any vessels lying in the Roads with a south-south-easterly gale, which is one of the bad winds, be able to go in?—They would, if lying to the south of the harbour at the time.

2781. But do they lie to the south of the harbour?—Not quite so much as to the north.

2782. What proportion of vessels do you think lie to the south of the harbour; do not they all lie to the north of the harbour in the Roads?—Not all; Captain Smyth informs me that only about one-half lie on the north.

2783. With reference to vessels being obliged to get under weigh in the Roads and to run for safety, would those vessels which are well to the north not be able to run under a different portion of the sands; for instance, would they not be able to run to the southward and get under the lee of South Scroby in a north-easterly gale; is it necessary to run into a harbour, or is it not sufficient to run from one portion of the Roads to another portion of the Roads?—Certainly, not sufficient, as is evident from the number of wrecks that take place, and the number of lives that are lost; because if vessels could be protected and be in safety by running from one part of the Roads to others, those casualties would not take place. The object of this work is what I have said; it is the best you can do for Yarmouth, but it is not a perfect harbour of refuge after all, on account of the want of depth and area.

2784. Is it not the fact that a large portion of those wrecks that are marked in the chart are the result of collisions?—Part of them are, and those collisions would be lessened by some of them getting out of the way into the harbour.

2785. Mr. Clay.] Is it not the case that for many years past opinions have been given in opposition to yours, namely, that the roadstead was capable of being turned into an excellent harbour of refuge?—I dare say it may be so; I can only give my opinion; I wish I could agree in an opinion so favourable to Yarmouth, but I cannot.

2786. I understand you that the shifting sands are, in your opinion, the great difficulty to any plan for that purpose?—The shifting sands are one difficulty, because any breakwater or artificial means erected upon the sands, from the sands being apt to shift, might, in place of being a breakwater, be at the bottom, and form a greater evil than the present sands do.

2787. The shifting sands, then, are an insuperable objection to a solid stone breakwater?—To a solid stone breakwater upon the sands undoubtedly. I should say it would be madness to erect any solid breakwater upon the sands; I have not said that it would be impossible to erect a solid breakwater in the roadstead, but it would be worse than building a house upon the sands, to think of building a breakwater upon them.

2788. Have you heard of any plan for a floating breakwater which you thought would be applicable?—No; I have seen many plans for floating breakwaters, but I don't think any of them applicable.

2789. Is Scroby Sand a shifting sand?—They all are shifting to an extent; and they would be more shifting if anything were put upon them.

2790. There was a plan, was not there, for a breakwater with piles on Scroby Sands?—Probably there were several.

2791. You think the same objection applies to that?—Yes.

2792. Did you ever see a plan by Mr. Teasdel, the deputy engineer there?—Yes.

2793. Was that a plan for making a harbour of refuge of sufficient size, and perfect security?—I think not of sufficient size; it is a very ingenious plan. I think, as I said in my report, it is the best I have seen. If the Commissioners had the funds, and required a breakwater for their own particular trade, it might be a very good plan, but speaking to this Committee of a national harbour, it is altogether too small. I think, in addition to that idea, any breakwater of that kind ought more properly to be called a break-surge, or a break-wave, than a breakwater, because it is open below, and the water has the power of getting under it and rising on the other side, so that it is not a perfect refuge harbour then; and it is known that if a fleet is lying in a particular position as close together in the Downs, or elsewhere, and another vessel comes on the lee side of them, those ships form a floating breakwater for the time, but the vessel that comes on the lee side of them is lifted nearly the same as if those ships were not near her.

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2794. *Chairman.*] I think, from the general tenor of your evidence, you only look to Yarmouth as a subsidiary harbour?—That is all, not further. I may be wrong, but I think it is in vain to look for more.

2795. And that even by an extension of the present works you could not afford to supply any larger area for vessels as a place of shelter than the channel of the river itself?—No, not to get in for perfect refuge; the outer harbour, which would be formed by the groynes I have referred to, would form a partial security, but a vessel would not be secure until she got within the piers.

2796. Consequently, the area being by nature limited could not, under any circumstances, be made capable of containing a very large number of vessels?—No; if of a large size, but a very large number of small and middle-sized vessels.

*Mr. Edward Best, called in; and Examined.*

2797. *Chairman.*] WHAT are you?—A master mariner.

2798. Connected with what port?—Hull.

2799. *Mr. Clay.*] How long have you been at sea?—Thirty-five years.

2800. Out of what ports chiefly have you sailed?—Chiefly from the north to the Thames; and from the coal ports.

2801. You sailed out of Yarmouth at one time, I believe, did you not?—I did for a short time.

2802. For how many years?—About nine years, I think, altogether.

2803. I dare say you heard the evidence that was given as to Yarmouth?—I did.

2804. Do you agree with it as you heard it generally?—Not altogether.

2805. Do you consider that Yarmouth roadstead could be made a harbour of refuge?—I do not; not of itself.

2806. Have you been in the Baltic trade at all?—I have been a few voyages to the Baltic.

2807. Then the coast which you are principally acquainted with is from Tees Bay to London?—From the Tyne to London.

2808. What do you consider the most dangerous part of that voyage?—I consider between Flamborough Head and Whitby is the most dangerous part of the coast.

2809. What is the special danger that you refer to?—Flamborough Head is the joining point to almost all parts of the coast, and from and to the Baltic, and sometimes to and from Hamburg. Fleets come there, and the danger is from being laid together there, which they very often are; great fleets of ships under the head, with a southerly wind; and, for ships coming there from the south, there is very great danger of being run down, which very many are.

2810. Vessels get baffled there?—Yes; they get up the length of the head, and there they lie under the head for shelter for a favourable opportunity to get south of the head.

2811. You are speaking of vessels from the north going southward?—Chiefly; all vessels coming from the north, from the Baltic, and other parts.

2812. Have you been frequently in that position yourself?—Many times.

2813. When you cannot get round the head, if the gale is not very severe, you ride it out as well as you can?—Yes, in favourable weather we bring up sometimes under a place called Speeton, in the entrance of Filey Bay.

2814. When the weather gets very severe, what are you obliged to do?—If

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we are at anchor, we get up anchor as soon as we can, if it is possible to do so, and either take the sea, or with a vessel of small draught, take a tidal harbour if we can.

2815. Run back to a tidal harbour?—Yes, which is not often the case; it is only with small vessels that you can do that.

2816. Of the great number of wrecks that takes place upon that coast, of which a very large portion are much to the north of Flamborough Head, is it your opinion that those are vessels that have got to Flamborough, and been obliged to run back?—I have no doubt of it.

2817. Do you think a harbour of refuge upon that part of the coast is absolutely required for the improved safety of our commerce?—It is, according to my experience.

2818. Where would you put it?—At Filey Bay.

2819. Is that the general opinion do you think of gentlemen of your class?—I think it is of 19 out of 20; in fact the majority of them.

2820. Is that an opinion which you have come to recently, or is it one that has been really conscientiously formed from the whole of your 35 years' experience?—I think that is from all my experience; I have often said so, and have heard it said by a great many others; I think I may say, that three out of four masters of vessels would say so.

2821. Would a port and a harbour of refuge be better there than one at Tees Bay; at Hartlepool, for instance?—I think a harbour there would be more useful, for this reason; vessels coming out of the coal ports generally get up there; I have noticed that all through my experience.

2822. How often do you imagine that you have been yourself in this way baffled at Flamborough Head?—In the course of my life a great many times; I cannot say exactly the number.

2823. About how many times should you say?—I should say, perhaps 20 or 30 times in my life.

2824. And you have been frequently caught in very severe weather, I suppose?—Yes; and had to run back.

2825. And if upon those occasions, for the asking, you could have had a harbour of refuge either at Hartlepool or Filey Bay, which would you have taken?—Filey Bay.

2826. Invariably?—Yes.

2827. Do you know anything of the great gale in January 1857?—I do.

2828. Do you know how many vessels were lost then?—I can show a list of 24 (I took it from the "Gazette" on the 4th of January) that were lost between Flamborough Head and Whitby on one day, the 4th.

2829. Part of them I suppose from foundering, part from collisions, and part from absolute wrecks?—I have no doubt from foundering, a good many of them, in a very heavy gale.

2830. Is it your opinion that a very considerable number of those wrecks would have been saved if there had been a harbour of refuge at this place?—I have not the least doubt of it.

2831. Were you in that gale yourself?—I was not.

2832. Have you seen or do you know any captains who were in it?—Yes; I have two letters from two captains who were in the same gale, one ran ashore in Filey Bay.

2833. And you feel no question whatever that that is the opinion of a very great majority of the gentlemen in your profession?—That is the opinion of a majority of them.

2834. Would this harbour of refuge in Filey Bay be of any use to the Baltic trade?—A great deal. Vessels coming from the Baltic, as far as my experience goes, generally make for Flamborough Head. Vessels that have been drifting about in the North Sea for some time, having had unfavourable winds, generally like to sight the head, and with a southerly wind have to stand out to sea again.

2835. Would a harbour of refuge at Hartlepool for the Baltic trade be of equal or of any advantage?—Not much.

2836. Why not?—Because it is a very deep bay and shoal water so far out. I do not think any large Baltic ships would go there.

2837. Is it too far north also to be of much use?—They generally steer more



to the southward to make the Humber or the Head; it depends upon the wind and the weather. Mr. Edward Best.

2838. Do you know Tees Bay?—Yes, for I have been in it many times.

2839. Is it within your knowledge that the water has been shoaling there for some years past?—It has, I believe, but I cannot exactly say the extent. I have been given to understand from those belonging to it, pilots and others, that it is shoaling up. I think I have heard say several feet within the last 20 years; but I cannot speak to the quantity.

2840. Have you any connexion with Filey, or do you know anything of Filey?—Nothing; I never was there but once in my life.

2841. You have no connexion with Filey whatever?—None whatever; I belong to Hull.

2842. The opinion that you give is one that you have formed for many years, in the course of your long experience?—Yes.

2843. In this voyage from the coal ports southward you consider that the great danger is being baffled at Flamborough Head?—I do.

2844. If secured against that by a harbour of refuge at Filey Bay, what have you to say to the rest of the voyage to the mouth of the Thames?—It would be a kind of half-way harbour between the coal ports and the Humber; we have an excellent harbour at the Humber; it is half-way.

2845. Is there any other part of the coast, when you have once got over this difficulty, that imperatively calls for a harbour of refuge?—There is not.

2846. Then, as far as your experience and pursuits are concerned, if they made you a good harbour of refuge at Filey, you would consider that you were sufficiently protected from all reasonable dangers in the voyage from the north-east ports to the Thames?—I should.

2847. *Chairman.*] From your naval experience on this coast, can you state whether the greatest amount of loss occurs to laden vessels or to light vessels?—To laden vessels.

2848. To laden vessels you have described as baffled at Flamborough Head?—Yes.

2849. But is it not the case that a large number of light vessels are blown ashore in the north-easterly gales?—Yes, it is; but they have a double chance to laden vessels, because where they have nothing but a tidal harbour, a light vessel may get in when a laden vessel cannot.

2850. *Admiral Duncombe.*] When you were in the coal trade, you frequently sailed out of Hartlepool, did you not?—More out of the Tyne than Hartlepool.

2851. But you know Hartlepool?—I do.

2852. During the time you were in that trade, your great difficulty was off Flamborough Head, as a general thing?—Yes.

2853. While you were commanding a smaller class of vessel you generally ran back to the tidal ports in the north?—Yes; being in command of a small vessel I generally had an advantage over a larger vessel, because I could run back to a harbour which I thought more safe at the time in a gale.

2854. Has it ever come to your knowledge, or has it ever happened to yourself, that a vessel was unable to complete her cargo at Hartlepool from want of water, and that she took part of it there and was obliged to go elsewhere to complete it?—Yes, I remember one or two of our ships. I cannot speak to two, but I know of one well.

2855. Since you left the coal trade you have been in the Baltic trade?—I have a little, in my former days.

2856. I believe that vessels going to the Baltic generally take their departure from Flamborough Head, and make it in returning home?—I believe they do.

2857. Therefore it is of great importance that there should be some safe harbour of refuge in the neighbourhood of Flamborough Head?—Yes.

2858. *Mr. Augustus Smith.*] You say that the larger number of vessels upon that coast that are lost are loaded ships?—Yes.

2859. How do you know that?—I think one reason is, that they are generally old craft, or vessels that have got into years.

2860. But I want to know how you know the fact, that the greater number of wrecks that take place are vessels in cargo, and not in ballast?—The reason by which I account for it is, their running back, and being laid too under the Head in southerly gales, not having a harbour of refuge.



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2861. Have you ever examined the wreck registers that are issued under the Admiralty?—I have seen them.

2862. But you have not gone regularly through them, to examine them to see whether the vessels lost upon that coast were laden, or in ballast?—I have not; but I have noticed there are more to the north, near to the Tyne and the Tees, than about there; but I have not noticed the distinction whether they were loaded or light.

2863. Then it is only an impression upon your part that the large number of wrecks were of vessels in cargo, and not in ballast?—I have proof of loaded vessels, but I never heard of many light ships, because they have a better chance.

2864. It is with a south-east wind, I suppose, that you cannot get round Flamborough Head?—Just so.

2865. Suppose you happened to be just to the north of Filey Bay, what would you do there for safety and refuge?—It would depend upon the position of the ship; if we were well out to sea, we could fetch Filey Bay; I should naturally make for Filey.

2866. Suppose you could not work to Filey because it was bad weather, where have you to go to if you are to the north of Filey Harbour?—I should have no alternative but to go to the Firth with a ship of any draught of water.

2867. Suppose a harbour of refuge were constructed at Hartlepool, would not that enable a greater number of vessels to take it, than if it were situate at Filey?—I do not think it would.

2868. You were asked a question just now as to the depth of water at Hartlepool, and stated that vessels that were loading could not get their full cargo from want of water; that, I suppose, refers to the present harbour, the dock harbour of Hartlepool?—No; I mean Hartlepool Bay.

2869. On account of the want of water in Hartlepool Bay, they would be obliged to leave Hartlepool without their full cargo?—I have known one instance, and I think more; but whether it was from fear of being exposed, I cannot possibly say; they would not go into Tees Bay if they had not shelter under the Heuf, and sufficient water there.

2870. But suppose there was a large breakwater further out to sea than the Heuf, such as was proposed?—I have not seen the plan.

2871. You do not know what depth of water there would be a mile from the shore?—I could not speak to the exact depth, but it would make certainly a great difference as to the water; I am merely speaking from the high land of what they call the Heuf to Salt Scars.

2872. Sir James Elphinstone.] You are of opinion that Filey Bay is the best point upon the east coast of England for a harbour of refuge, are you not?—I am.

2873. There is no question about that?—There is no question about that.

2874. Mr. Baring.] In what point do you differ with the evidence which you heard given by Mr. Walker respecting Yarmouth?—I think it very good so far, but I do not think there is sufficient room in the harbour; I have been nine or ten years belonging to the port, and I do not see where there would be sufficient room for the number of ships that might take it with a north-east gale.

2875. Supposing the depth to be increased, you do think that there would be sufficient width in the river?—I think not.

2876. Have you often been in Yarmouth Roads?—A great many times.

2877. In Yarmouth Roads, do vessels lie to the north or the south of the entrance of Yarmouth Harbour?—It greatly depends upon which way they are bound; if they are bound south they go to the south of the Cotton Roads; if they are bound north they go to the north.

2878. In a south-south-easterly gale, if you were to the north of the entrance harbour, could you take advantage of it?—Certainly not; I might get in, because about east and west is nearly off and on; it is nearly a trading wind; I might perhaps get into it if I was to the northward, especially if I was under Scroby; I should be able to get into Yarmouth Harbour with the wind south-east, not with the wind south.

2879. A south-south-easterly gale is one of the gales in which the roads do not afford so much shelter as in other winds?—North-east gales, and as far as south-south-west; that is the wind round by the east.

2880. Lord

2880. Lord *John Hay*.] Do the vessels that lie in Yarmouth Roads lie to the north or to the south of Yarmouth principally?—It wholly depends which way they are bound and what is the wind; if they are bound north, with a north-east wind or a north-west wind, they generally go to the north of Yarmouth Harbour.

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2881. I do not mean whether to the north or the south part of Yarmouth Roads exactly, but I want to know whether they lie to the north or to the south of the mouth of Yarmouth Harbour?—I think about half and half, for we generally reckon it a pretty good roadstead, when the wind is off the land especially.

2882. They generally lie half and half, do they?—They generally lie half and half.

2883. You know the mouth of the harbour pretty well, do you?—I do.

2884. Supposing a number of vessels were to get under weigh in consequence of their not being able to ride at a north-easterly gale, and were to run into the mouth of the river, would there be room for them before they were able to be towed up the river; would there be room between the mouth of the river and the bend which goes to the northward?—I should rather doubt it, unless there were a good many steam-boats to take them away as they went in.

2885. Do you consider that there would be that accommodation which would be necessary to make the harbour effective?—I think there might be.

2886. By extending it to a very considerable degree?—A considerable extent it would have to be.

2887. Have you seen the plan which was proposed by the previous witness?—I have not.

2888. What width do you think would be sufficient for vessels to lie in that ran in under the circumstances which I have just described, the length being about 600 yards?—I should say, after once entering it, about as wide again.

2889. You think that the river is not nearly wide enough to hold a number of ships brought in suddenly?—There is a great distance; I think, somewhere about two miles between Gorleston and the entrance of Yarmouth town.

2890. But I speak as to the width?—The width is quite sufficient.

2891. Would you moor the vessels head and stern?—I would moor them head and stern.

2892. Would you make them fast to buoys?—To buoys, or to the jetty-works on the shore.

2893. Then it would be necessary that wharves should be built along the river for the purpose of securing the vessels to them, would it?—I should think so.

2894. What is the depth of water up the river where the harbour is proposed to be formed; is it steep at the sides?—It is not at present; it is rather descending at the sides; it is not steep.

2895. Then some very extensive works would be necessary before you would be able to lay vessels along the river side?—I do not think so very extensive, because the flow of the tide is not much at Yarmouth; it would not require very extensive works.

2896. How far would the vessels be from the side of the river?—Close to the side of the river.

2897. Am I to understand that the river is formed by a deep cutting in the land; how would you lay a vessel close to the shore, against the shore?—By making jetty-work, and then deepening it sufficient that she might come alongside.

2898. You would have wharves, in fact, two miles in length?—There would not be sufficient room unless there were.

2899. You do not call that an extensive work?—When I say not extensive, I mean that they would not require such deep piling; the flow is so small; it is not like what we have in Hull; it is only a few feet; we have 25 feet.

2900. What is the average rise and fall of the tide?—Eight or ten feet, I believe.

2901. Suppose a vessel is lying in the northern part of the roads, with a north-north-east gale, and it is necessary, in order to get further protection, to run somewhere, would it not be possible to run further to the southward in the Roads, and get better protection under the Southern Scroby?—Yes.

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2902. It

Mr. Edward Best.

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2902. It appears that if you run to the southward you get under the lee of the southern portion of the shoal with a north-north-east gale?—Yes, I should go under the Cotton Sands.

2903. Would not it be sufficient that the vessel should run under the lee of the southern portion of the Scroby shoal?—Yes; but the Scroby shoal continues to St. Nicholas Gat.

2904. But do you think it necessary that a harbour should be constructed at all at the mouth of the river; would not vessels be sufficiently protected if they were to weigh, and to run under the lee of a different portion of the shoal?—There is not any protection when the wind gets to the eastward of north-east, and to the southward of south-west, and the sands are all covered; they have not sufficient protection in a heavy gale.

2905. Sir *James Elphinstone*.] A well-found ship, with good ground tackle, can always ride in Yarmouth Roads, cannot she?—Yes.

2906. There is no doubt of that?—A stout vessel can; I have rode a good many myself out in Yarmouth Roads.

2907. I want to know whether a stout vessel, with good ground tackle, cannot always ride in Yarmouth Roads?—It must be very bad indeed if she could not.

Mr. Joseph Thompson, called in; and Examined.

Mr. J. Thompson.

2908. *Chairman*.] IN what capacity do you appear here?—I have been at sea 25 years.

2909. As a master mariner?—Yes.

2910. Are you well acquainted with the port of Liverpool?—Quite so.

2911. Mr. *Ewart*.] How long have you been at sea?—Twenty-five years.

2912. How long have you been sailing out of the port of Liverpool?—All my life.

2913. To all parts of the world?—No, I have never been much south of the Equator; always to the West Indies and the United States, and latterly, for 10 years, in steamers.

2914. Therefore you are very well acquainted with the Channel and the approaches to Liverpool?—Yes, I am, pretty well.

2915. What is your opinion as to which would be the best harbour of refuge for large sea-going vessels in the approaches to Liverpool, say on the coast of Ireland, for the inward-bound vessels?—For those below Tuskar, I should say Waterford.

2916. Is Waterford easy of access?—Yes, it is rather shallow, but it is easy of access; I have taken it twice myself.

2917. But it could be improved?—It could be.

2918. What is the next situation which you think would be the best for a harbour of refuge after Waterford?—Then I think Carlingford is indispensable for vessels bound out and home.

2919. Before we get to Carlingford, what do you say to Studwell Roads, would that be a good place?—I have never been in there, but from the position of Studwell Roads, I should say it would be a very good position.

2920. What are the prevailing gales of wind in the Irish Channel?—Westerly, south-west, and southerly.

2921. How do they generally end?—Generally in north-west.

2922. Then taking shelter in Studwell Roads, from a south-west gale, you would be able to get out very easily?—I have never been in Studwell Roads myself, but from the locality in coming up channel I know it would be a boon; I can speak to the others very well.

2923. What courses have you generally taken from Liverpool when you have been bound to the West Indies?—Generally the south; I have once gone out through the north channel, bound to the Havannah, but only once.

2924. Would you take the north again?—No; I would generally take the south.

2925. Then, after Waterford, you think Carlingford would be the next best place?—I think so.

2926. Have you been in Carlingford?—I have been in very often.

2927. Is there a bar at Carlingford?—There is.

2928. Could

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2928. Could that be easily removed?—Quite easily.

2929. Is the shelter good there?—Very good.

2930. And the holding ground?—Yes.

2931. Next to Carlingford, do you know anything of the Isle of Man?—I have passed it four times a week for four years, within a very few miles of it.

2932. Do you think the Isle of Man a good situation for a harbour of refuge?—Not for large ships; the place would be difficult to make for large vessels; that is from the appearance of the land about the small harbour.

2933. Do you know Port Ering?—No, only in passing it.

2934. Then I gather generally from you that Waterford would be the best position for outward-bound from Liverpool and inward-bound vessels to Liverpool?—After Carlingford, or along with it; they are both nearly equal; vessels coming out of Liverpool generally trend over to the Irish coast, between Clogher Head and Mountain Foot, and once in there between those two places, with a southerly wind on shore, it is impossible to go into Dundrum Bay without getting ashore.

2935. Mr. Hassard.] You said that you were twice in Waterford Harbour; under what circumstances were you there?—I was obliged to put in there; the wind was from the southward; we were once outward-bound, we could not weather the land, and we were obliged to take shelter in there.

2936. In what sized vessel?—A 600 ton ship.

2937. I suppose you were obliged to wait for the tide?—We were obliged to wait for the tide indeed; we had to go on the top of it.

2938. When outward-bound, do you generally keep the Irish coast?—We generally keep across there, expecting the wind from the north-west.

2939. I believe the coast from Waterford west is clear of outlying danger?—Yes.

2940. There is deep water close to it, is there not?—Yes.

2941. Are the tides stronger on that side; on the southward?—Stronger at the Tuskar.

2942. But west of Waterford, are the tides slacker than in the mid-channel, or on the Cornish coast?—Yes.

2943. Would it be an advantage for you to be able to keep close to the Irish coast?—Yes, coming in and going out.

2944. Would you feel safer in doing so if you knew that you could run for Waterford, if you had it under your lee?—Yes.

2945. Do you know anything about the nature of the bar at Waterford?—No, I do not.

2946. Do you know whether it would be easily deepened or not?—No, that is more an engineering question.

2947. But you consider it would be a very great advantage to have a harbour at Waterford under your lee, to run for?—Yes.

2948. Mr. Augustus Smith.] You have only once, you said, taken the north course?—I have been in and out of it often, but only once from Liverpool.

2949. Have you often taken the north passage from other ports?—Going out to the Baltic I have taken the north passage.

2950. Have you ever been to Portrush?—I have once.

2951. Supposing there was a harbour of refuge there, would it be of any service to the mercantile marine going by the north passage?—Oh, yes.

2952. Would it be more advantageous, do you suppose, than Carlingford?—Decidedly not.

2953. What are the particular winds in which you would resort to Carlingford as a harbour of refuge?—A south-west wind would be a very good wind for going into Carlingford, and you could lie in shelter there; and with a north-west wind you could get out of it.

2954. But if you were going north, with a south-west wind, you would not want a harbour of refuge at Carlingford?—No.

2955. You would not want to resort to Carlingford then, would you, as a harbour of refuge?—For one vessel that goes out north, there are 90 go out south.

2956. But supposing you were going south, would Carlingford be useful?—Yes.

2957. When you were as far south as that?—All vessels that leave Liverpool

Mr. J. Thompson. with a southerly wind trend over towards Carlingford with a southerly or south-west wind.

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2958. Would you start with a southerly wind, bound out, intending to go south of Ireland?—Yes; the wind south or south-west in the Channel is generally south-south-east from Liverpool, and that is the sailing wind from Liverpool. When you arrive in the middle of the Channel you find that the south-west wind leads you directly under the Mourne mountains, between Clogher Head and Dundrum Bay.

2959. But, knowing that the wind outside was probably adverse, would you start from Liverpool under those circumstances?—Yes, because with the wind at north-west you cannot start from Liverpool so well, therefore you start with a southerly wind, and go across to the Irish shore, expecting the wind from the westward, and then the wind, instead of coming from the westward, comes from the southward, and embays you between Clogher Head and Dundrum Bay.

2960. Then you generally expect the wind to shift towards the north to enable you to get out?—Yes; but there is a risk incurred of the wind shifting to the southward, and blowing hard, which would have a tendency of sending the vessel ashore.

2961. Supposing the position was such that you can keep to sea, is not the harbour of Holyhead available?—Provided you are to windward.

2962. Supposing you were in such a position that you could beat to windward?—You cannot beat to windward in a gale of wind. The track of the vessels is to the leeward of Holyhead from Liverpool bounded by the south channel.

2963. What has been your experience with reference to the new harbour of Holyhead being of service to the mercantile marine?—I think it has been of service, but not in proportion to the outlay incurred.

2964. What has been the extent of the service which it has been to the mercantile marine?—I think it has been of some service.

2965. Could it have been better placed upon that coast, so as to have been of more service?—The more harbours of refuge you make the better. To say that it is of no use would be ridiculous.

2966. But is there any other position on that coast where, if it had been constructed, it would have been of more service?—I cannot say that, because it requires one there.

2967. The greater part of the outward foreign trade goes southward of Ireland from the port of Liverpool?—Yes.

2968. Do ships bound outward generally pass very near to the Tuskar?—Yes.

2969. Supposing that there were any position near the Tuskar where a harbour of refuge could be constructed, that being the turning position on the coast of Ireland, would be a better position than Waterford?—I think not.

2970. Why not?—Because the one answers for the inward-bound ships and the outward-bound ships too. Now being the turning place for the inward-bound ships, they have Waterford under their lee, and Wexford is a port for some.

2971. I speak of just the inside of the Tuskar, between Greenore and Carnsore Point; have you ever been in that position?—I have.

2972. Have you examined that coast at all?—Yes; I was engaged by the Trinity to go round Ireland.

2973. Do you suppose that there are any facilities for making a harbour there?—I do not think there are.

2974. Are there any rocks in the way there?—I think there are. I do not think that there are facilities sufficient for a harbour of refuge.

2975. Suppose there were facilities; supposing it is practicable, would it, in a naval point of view, be a good position or not?—For outward-bound vessels it would.

2976. Why not for homeward-bound ships?—Because vessels coming from the westward, from the Atlantic, with a southerly wind, generally keep to the southward; they keep off the Irish coast; but a vessel from the northward would get over towards the Welsh coast, and sometimes they find themselves a little bit to the westward of where they expect. They sometimes find themselves inside the Saltees; that is the first land that they make many times from a three months' voyage; and the moment they see the Saltees they know exactly

exactly the position they are in; they then see that they cannot weather Tuskar without going ashore, or they cannot weather Saltees without going ashore; they cannot weather the south coast of Ireland upon the other tack; therefore, they have nothing but going ashore, or Waterford.

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2977. The coast between Saltees and Carnsore Point is very dangerous, is it not?—It is very dangerous.

2978. Mr. *Philips*.] Are you acquainted with Wexford Harbour?—No; I have been close to it, but not into it.

2979. You do not give any opinion about it?—No.

2980. With regard to the Welsh coast, is there any point besides Studwell Bay that you would recommend?—No, I cannot speak much about the Welsh coast.

2981. Mr. *Augustus Smith*.] Are you acquainted with the Bristol Channel?—Yes, I have been in it.

2982. Do you know the Mumbles?—Yes, I have been in it several times.

2983. Do you think it an advantageous point for a harbour of refuge?—It is a safe point as it is; I consider a harbour of refuge is where you are embayed and must go ashore where there is no safety; that is, such a place as Carlingford or Waterford.

2984. Sir *Frederick Smith*.] You have stated that you think Carlingford is a preferable place to Portrush?—I do.

2985. Will you state your reasons?—For one vessel that goes out by the North Channel ten goes out by the South, that is one reason.

2986. And therefore Portrush would not be serviceable to those vessels going south, of course?—Not in the same proportion.

2987. In the case of vessels returning, do they ever return by the North Channel to Liverpool from foreign voyages?—Yes.

2988. They sometimes come by the North Channel?—Yes.

2989. When they do, would not Portrush be useful?—Not to the same amount; because there would be but from one or two points of the compass that the vessel would get harm done about there, while at Carlingford, with the wind from south-west round to south-east and east-south-east, there is immense risk.

2990. Suppose, when she gets a little to the eastward of Portrush, a strong easterly gale were to come on, would not Portrush be available?—I do not mean that Portrush would not be available for a harbour of refuge; I should say both would be, but Carlingford is the best.

2991. Suppose that you leave Liverpool with an easterly wind, which course do you prefer, the northerly or southerly?—The south.

2992. What wind might you meet with in the southern course that would render a harbour of refuge necessary for you going the south course?—A wind from the south or south-south-east round to west-south-west.

2993. In any of those cases, which would then be the most useful harbour for you?—Carlingford, because you can get into Carlingford with the wind from the west-south-west round to east.

2994. But suppose you got further south, that you got clear of St. David's, for instance, where would then be the most useful port for you, as far as Cork?—Waterford, of course, then.

2995. Vastly in preference to Wexford?—Yes.

2996. Why?—Because there is Tuskar the turning point; Waterford Harbour would do for inward and outward-bound ships.

2997. But you cannot go into Wexford?—Wexford is more of a sandy harbour.

2998. In fact, you think Waterford is a better harbour even now?—Of course, it is now.

2999. Could not Wexford be very much improved?—I cannot exactly speak to that, but I know that the position of the two places is in favour of Waterford.

3000. But, as a sailor, you would know what alterations ought to be made at Wexford, to make a harbour for you?—Of course, if you can deepen it, you can make a harbour anywhere.

3001. Would it not be likely to silt up?—I should say Wexford would be likely to silt up, but I know that Carlingford never would silt up.

3002. Do you know anything of the Welsh coast?—No, not particularly.

3003. Nor of the Cornish coast?—No.

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3004. Mr. Clay.] I understood you to say, that ten vessels to one going foreign out of Liverpool, take the south passage?—Yes.

3005. Would they still do so if there were a sufficiently good harbour of refuge at Portrush or elsewhere, upon the north coast?—Yes.

3006. They would prefer the south passage to the north, under any circumstances?—Yes.

3007. You have invariably taken that passage yourself, with one exception, you say?—Yes.

3008. Has it ever happened to you to take refuge in the Bristol Channel?—Once in the Mumbles, but I was bound into the Bristol Channel then.

3009. Sir James Elphinstone.] Do not you think that if there were a good harbour at Portrush, a considerable number of vessels would go north about, though the majority would go the other way?—Not from Liverpool.

3010. Mr. Augustus Smith.] Do not vessels take the north passage much more latterly than formerly?—I do not think they do.

Mr. William Hamilton, called in; and Examined.

Mr. W. Hamilton.

3011. Chairman.] YOU are a naval man, I believe, and acquainted with the port of Liverpool?—Yes.

3012. Have you been extensively engaged in the command of merchant vessels trading to that port?—I have been in command for 22 years.

3013. Mr. J. Ewart.] Have you sailed for many years from the port of Liverpool?—I have been sailing constantly since the year 1846.

3014. Bound on foreign voyages?—Yes; to the Southern States of America, and India.

3015. What passage have you generally taken?—I prefer the south channel; but I have frequently been through the north, that is, in the Baltic trade in former years.

3016. But, as a general rule, you would prefer the Southern Channel?—Yes.

3017. Taking that to be the general course, where do you think would be the best situation for a harbour of refuge for large sea-going vessels on the coast of Ireland, looking at the general nature of the winds?—I should say that Lough Carlingford, from Liverpool, would be the best.

3018. Is Carlingford easily made by the land?—Very easily.

3019. Is the land high over it?—Yes.

3020. There is a bar at Carlingford?—Yes.

3021. But you think the situation of Carlingford good, and that it might be made a good harbour?—Provided it could be opened up.

3022. Are you speaking of Carlingford with respect to outward-bound vessels, or inward-bound vessels?—Taking them both ways; ships coming inward bound with south-east gales get there and get on shore.

3023. For a vessel inward bound with a south-westerly gale, approaching Ireland, when the wind comes round to the northward of westward, which it generally does, I understand, which do you think would be the best situation for a harbour of refuge on the south coast of Ireland?—Waterford, I think.

3024. Have you any doubt about that?—I am quite sure of that.

3025. Do you know Waterford?—I have never been into it, but I have been frequently along that coast.

3026. You speak of the situation?—I speak of the situation.

3027. Next to Waterford, is there any other place for a good harbour of refuge on the Irish coast, or standing over to the Welsh coast?—I think St. Tudwall's Roads to be a very good locality for a harbour.

3028. St. Tudwall's Roads is a good harbour of refuge now, and much used with north-westerly gales?—So I understand.

3029. But you have never been in there?—I have not, but I have been frequently along the coast there.

3030. Have you been often north-about?—I think I have been some thirty times through the Channel.

3031. Do you know the situation of Portrush?—I know the situation of the harbour, but I have never been into it; I have been inside the Skerries frequently.

3032. Supposing a good harbour of refuge was made at Portrush, do you think

think that Liverpool vessels bound to the westward would frequently take the north channel?—I think they would always prefer the south; Liverpool masters prefer the south, and the Clyde masters prefer the north.

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3033. I think you know something of the Isle of Man, do you not?—I have been frequently round it with small vessels.

3034. Have you formed any opinion as to whether the Isle of Man is a good place for a harbour of refuge?—For small vessels only, not for large ships; for fishermen.

3035. Mr. *Hassard*.] You spoke of a vessel bound from Liverpool being caught in a strong south-easterly gale in the Irish Channel; where would she be able to run for now in that case?—She would not be able to get in any place now, if she passed Kingstown Harbour.

3036. Even at Kingstown would she be safe?—With a south-easterly gale she would.

3037. That is, if she got into the harbour?—If she got into the harbour.

3038. But would she be able to get into the harbour with a south-easterly gale?—Yes, I think so.

3039. Would there not be any obstacle?—Not with a south-easterly gale.

3040. Occasionally vessels, I believe, are lost on the Kish Bank?—Sometimes.

3041. Would you prefer running for Dublin or for Carlingford under those circumstances?—I would prefer Carlingford. There is a great risk in taking a large ship into Kingstown Harbour even now; it is too confined.

3042. Mr. *Augustus Smith*.] You said that you had been engaged in the Baltic trade?—Yes.

3043. In going round the north of Scotland, what passage do you generally take?—Through the Minch.

3044. But further north, do you go through the Pentland Firth or outside the Orkneys?—Through the Pentland Firth.

3045. You prefer that?—Yes.

3046. Have you ever found that you were under circumstances there in which you were in want of a harbour of refuge?—No, I cannot say that I have.

3047. Are you at all acquainted with the harbours in that part of the world?—I am not, but I know there are good harbours in the Orkneys.

3048. Do you think that those harbours in the Orkneys are sufficient for the trade that passes round that part of the coast?—I would not wish to offer an opinion about that, not having been in there myself.

3049. Were you ever in the neighbourhood of Peterhead?—I have worked along there with a ship, but it is many years ago.

3050. Have you ever been in want of a harbour of refuge north of Liverpool on the English coast?—I have.

3051. Is there any position that you could point out that would be serviceable to ships navigating those seas for a harbour of refuge?—There is Pielfeudry.

3052. Where is that situated?—Inside Walney Island.

3053. Are there any particular facilities there for the formation of a harbour of refuge?—It would require to be dredged out.

3054. What depth of water is there now?—About three fathoms at high water.

3055. At Walney Island?—Yes.

3056. Has Fleetwood any facilities for being made a harbour of refuge?—I think they could make a very good harbour there, but I do not think that ship-masters in bad weather would like to go down there if they could possibly avoid it.

3057. A good many wrecks I see by the chart take place upon that coast?—Yes.

3058. Mr. *Philips*.] Are you acquainted with any other point upon the Welsh coast at which you would recommend a harbour of refuge, except St. Tudwall's Bay?—I consider that there are harbours required up the Bristol Channel.

3059. I am speaking of the west coast, just opposite to Ireland?—No, I do not know any other place where there could be a harbour made available for ships going south from Liverpool.

3060. With reference to the Bristol Channel, you think there is occasion for a harbour of refuge there?—Yes.

3061. Where would you recommend that it should be placed?—I am not sufficiently acquainted with the Channel to give an opinion; I have only been



*Mr. W. Hamilton.* four times up and down it, but I should say that at Caldy Island there could be a place made.

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3062. Is there any other point you would recommend?—No; I do not know of any other.

3063. Lord *John Hay*.] I think you said that Liverpool ships always, or nearly always, go out by the south of Ireland in preference to the north?—Yes.

3064. Supposing you were going from Liverpool in a very strong south-westerly wind, would you go to the south or to the north of Ireland?—I should go south with a south-west wind; with a south-east wind I would go north.

3065. Is the south-east wind a common wind in the Irish Channel?—The Channel wind is the south-west.

3066. But when it blows from the south-east you would go to the north?—If it blew strong I could not get through the south channel; I would go north certainly.

3067. Do vessels bound to North America go out by the south of Ireland?—Generally.

3068. They would prefer beating down the Irish Channel against a foul wind to running out with a fair wind through the north channel?—I do not think a man would do that, provided the wind was to the south; but if the wind was to the south-west, I think a man would beat to windward in the south channel.

3069. Could you lay down the Irish Channel with the wind to the south-west?—I could go north to Tory Island.

3070. Then in fact it depends upon the wind which channel you go by, the north or the south?—No; I prefer the south.

3071. Why do you prefer the south?—Because you are sooner clear of it.

3072. Do you mean that the distance is less from the southern point of Ireland where you take your departure, than from the northern part of Ireland?—It is shorter taking from Holyhead to Tuskar, than from Holyhead to Tory Island.

3073. Is Tuskar the last land you see?—It is generally the last.

3074. In fact, you think you get sooner clear of the land by the south route than the north route?—Yes; and besides that, there is more room in the channel; the north channel is very narrow.

3075. Is not the southern channel more crowded than the northern in consequence of more ports being in the vicinity, such as Bristol and some of the Irish ports?—Yes, I think it is, but they have got a greater space.

3076. They have a greater space in proportion to the vessels which go the other way?—Yes.

3077. Have you been often out through the north channel?—Some thirty times.

3078. Which way does the Glasgow trade go, by the south of Ireland or the north?—Principally by the north.

3079. Is there an extensive trade that goes to the north?—The Montreal trade, the Quebec trade, and the Baltic trade.

3080. Supposing a vessel to be going from Montreal and Quebec, would that vessel go by choice by the south of Ireland if there was a harbour of refuge in the north of Ireland at Portrush, or some such convenient place?—The steamers going to Montreal go north.

3081. Then it is a question of wind, you think?—No, not with steamers; it is a question of distance.

3082. How is it with sailing vessels?—Sailing vessels I think prefer going south, even going more distance.

3083. You consider, then, that if a harbour of refuge were made somewhere near Portrush, sailing vessels would not even then prefer going out by the north of Ireland to going south?—I think, not Liverpool masters.

3084. But it would be a great convenience to the Glasgow trade?—It would be a great convenience to any ships passing through the channel.

3085. Would it be a great convenience to the Belfast trade?—It would.

3086. Then do you think it very advisable that a harbour of refuge should be constructed at Portrush?—I think it would be of very great advantage to shipping.

3087. Looking at it in a national point of view, you think that a harbour of refuge

refuge should be made in the vicinity of Portrush?—I do, I think it would be of very great advantage. Mr. W. Hampton

3088. Sir *Frederick Smith*.] Supposing you had sailed from Liverpool, and had taken refuge in Carlingford, and the wind came round to the southward, would you be disposed to take the north channel from Carlingford, or would you go south?—I would not go north without the wind was south. 12 April 1858.

3089. Is there any quarter in which the wind could be blowing in which you would be induced to go north from Carlingford?—No, not from Carlingford.

3090. Then you would run down the whole east coast of Ireland rather than go by Portrush?—Yes.

3091. It appears that you have very seldom gone by those ports in the north channel?—I have not gone often.

3092. Have you been commanding sailing vessels in those cases?—Yes.

3093. And almost always kept clear of the ports?—I have not always; I have been in a few of the ports.

3094. Mr. *Clay*.] Have you ever been in Lough Foyle?—I have not; but I have been at the entrance of it frequently in working up.

3095. Lough Foyle is by many parties called a harbour of refuge, and used as such?—Yes; but the entrance is very narrow for a man to take a large ship in in bad weather.

3096. If there was a harbour of refuge at Portrush, do you think it would make any considerable difference with vessels going from Liverpool as to whether they went by the south or the north of Ireland?—I do not think it would.

3097. Admiral *Duncombe*.] I understand you to say that the Clyde masters prefer going the north passage, and the Liverpool masters the south?—Yes.

3098. The reason being that each, as you suppose, gets clear of the land soonest?—Yes.

3099. What is the wind with which you generally leave Liverpool?—We leave with the wind to the south, and round to north-north east.

3100. After getting out, you frequently find that the wind heads you going round to the south of south-west?—Yes.

3101. Under these circumstances, the strength of the wind increasing, is Holyhead of any service to you as a refuge?—If it blows strong from the south-west you would not be able to go into it.

3102. But captains foreseeing bad weather coming on, could take refuge in Holyhead?—You could go into it, but it is a bad harbour to get out of again going to the southward.

3103. Then so far as your experience goes as to the Liverpool trade, Holyhead is not of much use after all the money that has been spent upon it?—I do not think it is, except for steamers.

3104. You mean that you would prefer a harbour of refuge at Carlingford, or somewhere upon the coast of Ireland?—Yes, I have been as much as six days between Carlingford Lough and the Isle of Man.

3105. Are you still of opinion that, if there was a harbour of refuge in the north of Ireland, at Portrush, or somewhere in that neighbourhood, the Liverpool trade would not, as a general rule, use that north passage?—I do not think it would; I would not myself as a shipmaster.

*James Abernethy*, Esq., C.E., called in; and Examined.

3106. *Chairman*.] YOU are a Civil Engineer?—I am.

3107. You have been extensively employed in designing and constructing harbour works in different parts of the United Kingdom?—I have. J. Abernethy, Esq.  
C. E.

3108. Have you been professionally employed in various harbours upon the east coast of Scotland?—I have.

3109. For a considerable period?—For a considerable period.

3110. For what length of time?—Some 15 or 16 years.

3111. Are you acquainted with the harbour of Fraserburgh?—I am.

3112. Have you surveyed that harbour?—Yes, I have.

3113. I believe you have furnished designs for its improvement and extension?—I have.

3114. Are you of opinion that Fraserburgh is the best calculated for a harbour of refuge of any harbour upon that coast?—I am, and for this reason, the prevailing winds are from the south; south-easterly gales are exceedingly prevalent:

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prevalent; the promontory called Cairnbulg Point to the southward, shelters Fraserburgh Harbour from the action of those winds, and by the simple extension of the present north pier, effective protection would be afforded from the north-easterly gales, the quarter to which at present the harbour is most exposed.

3115. I believe you have furnished a design for the extension of the existing north pier at Fraserburgh?—I have (*producing a plan*).

3116. Will you explain precisely the effect that such extension would have upon the harbour as a harbour of refuge?—I have already stated that the Harbour of Fraserburgh is entirely sheltered by the projecting headland called Cairnbulg Point, lying about two miles to the southward, from the action of easterly and south-easterly seas; its present exposure is from the north-east. By extending the present north pier 1,400 feet, effective shelter would be afforded from all winds, and vessels drawing 20 feet of water and upwards would be enabled to enter that harbour at low water of spring tides.

3117. Have you formed any estimate of the probable expense of the works?—I have estimated the cost of the extension of the pier at the sum of 80,000 £.

3118. What would be the distance to which, by this plan, the pier would extend?—1,400 feet.

3119. Are there some natural facilities for the construction of mason work in the immediate vicinity?—There is an extensive supply of good stone in the immediate vicinity; as you will see by the plan; extensive works have already been constructed at Fraserburgh Harbour, all the material of which was procured upon the site; and there is material available for works of still greater importance.

3120. What is at present the amount of the shipping at Fraserburgh?—I have in my hand certain statistics which have been furnished me; I cannot speak to their accuracy from my own personal knowledge, but I can put this statement in. (*The Witness delivered in the same.*)

Vide Appendix.

3121. Supposing these works to be constructed, what would be the nature of the anchoring ground, and what would be the area inclosed for the use of vessels?—By the extension of the pier to the length which I have stated, that is, 1,400 feet, there would be an area sheltered from all winds of about 11 acres for vessels drawing 20 feet and upwards, and about 30 acres for vessels of a less class; independent altogether of the accommodation within the present tidal harbour, which amounts to about 33 acres.

3122. Would there be great facilities for entering this harbour at all states of the tide and wind?—Yes, in all states of the tide and wind.

3123. Admiral *Duncombe*.] Does the blue show what has been already done?—No, that is a projected pier in connexion with the railway traffic.

3124. This graving dock and this extension of the pier is what you contemplate in your plan?—Yes.

3125. *Chairman*.] I presume that the funds for these works have been locally supplied?—Yes; the pier is at present executed to this point, and for want of funds we have not been able to go on. The effect already has been to shelter the harbour very greatly; we get 36 feet at low-water spring tides by this extension to the north; in a north-east gale they would be under the lee of this pier. Cairnbulg Point projects, and shelters it completely in that direction (*explaining the same on the plan*).

3126. Fraserburgh is embayed?—It is.

3127. Then I understand that this blue forms no part of your present suggestion?—Not for the harbour.

3128. It is part of your works connected with the railway, and not for the harbour?—Not for the harbour.

3129. Then this extension, as shown upon the plan, will make the harbour as you conceive a safe harbour of refuge, containing about 33 acres of anchoring ground?—Yes; for the larger vessels.

3130. And that extension of the pier, with the facility of material upon the spot, might be made for about 80,000 £.?—It could.

3131. Mr. *Augustus Smith*.] That, you say, is for the largest vessels?—For vessels drawing 20 feet.

3132. But if they draw more than that, they cannot go there?—There is a limited extent of shelter for vessels drawing even 23 or 24 feet.

3133. That is the limit?—That is the limit.

3134. You

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3134. You have examined the south-east part of that bay; would there be any facilities for forming a harbour of refuge from Cairnbulg Point?—No; there are not the same facilities, and I do not think a harbour at that point would answer the purpose, because it is exposed directly to the action of south-east gales; the other is sheltered from the south-east gales, and only requires an extension of the north pier to shelter it from the north-east gales, which are not the prevailing gales there.

3135. Sir *James Elphinstone*.] What is to be the length of the new pier?—One thousand four hundred feet.

3136. What will it cost?—£.80,000.

3137. Has there not been a very considerable harbour-work at Fraserburgh, which was knocked down by the sea?—There has been 50,000*l.* expended up to the present time on the works of Fraserburgh harbour.

3138. Does this improvement repair the old works, or make new ones?—The old works have been repaired at the expense of the trustees.

3139. And you now propose to carry this out at an expense of 80,000*l.*?—Yes.

3140. How much water is there available for vessels drawing 19 feet and upwards, to run in under shelter?—About 11 acres area.

3141. How do you get into this harbour in a south-east gale?—The harbour is directly open to it; after rounding Cairnbulg Point, a south-east gale is a leading wind into the harbour.

3142. Then the harbour is perfectly open to the south-east?—No, it is sheltered by Cairnbulg Point, which projects considerably to the east of south-east from the harbour entrance.

3143. At present it is a tidal harbour, is it not?—It is.

3144. It is entirely dry inside, is it not?—Except a small portion near the pier head.

3145. At present no vessels can run for it?—At present no vessels can run for it at low-water.

3146. With a north-east gale the place is perfectly open?—It is.

3147. Would it not be a matter of considerable hazard to run for such a place as that in a north-east gale?—No, I think not, if that pier was built.

3148. Would it not be better to run higher up if you got round the point at all?—I believe if you were considerably to the north of the entrance to the Moray Firth, you might not run for Fraserburgh Harbour; it might not be advisable.

3149. What is the largest vessel that belongs to Fraserburgh?—I am not sufficiently acquainted with that matter to be able to say.

3150. What is the largest sized vessel that can use the harbour?—The depth of water will of course regulate that; I should think at high-water spring tides a vessel drawing more than 14 or 15 feet could not enter.

3151. You do not give more depth in the inner harbour by this proposed extension?—No; but we afford complete shelter from the action of the north-east gales, which cause a considerable range within the inner harbour, so as to make it unsafe; but by the extension of the existing harbour there would be complete shelter from the range of the sea.

3152. You do not consider that that could ever be a harbour of refuge for large ships, do you?—My view of the matter is that it would serve the purpose of a harbour of refuge for a limited section of coast. I am decidedly of opinion, that as regards the north-east coast of Scotland, a harbour of refuge at any one given point would not subserve the interests of the shipping, and that it would be much better to provide local harbours of refuge within given sections of the coast.

3153. Then you look upon it as entirely a work to be undertaken for the purpose of supplying the necessities of the coasting trade of that neighbourhood?—For coasting vessels along a given section of the coast, say from Moray Firth to Buchan Ness.

3154. You do not anticipate its being a harbour of refuge for large ships?—No. I think for the class of vessels I have already stated, drawing 20 feet of water, to a limited extent it may be considered a harbour of refuge, but only to a limited extent.

3155. But is not that rather a nautical question; is not that rather beyond the sphere of an engineer?—No. I think an engineer who has been employed

*J. Abernethy, Esq.,*  
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for a number of years in constructing works at various harbours, and having ordinary powers of observation, may draw his own inferences, and be sometimes more correct than a nautical man.

3156. Lord *John Hay*.] I think you say the works that you propose to make would cost about 80,000 *l.*?—Yes.

3157. Supposing you were to spend a larger sum of money, say double that, would you be able to afford a corresponding increase in protection?—Yes.

3158. Why do you confine yourself, then, to that estimate?—Because I have always treated the subject of the extension of Fraserburgh Harbour in a local sense; as a local harbour of refuge for a limited section of coast, entertaining the opinion which I do, that a large sum of money laid out at any one particular point on the north-east coast of Scotland would not subserve the general purposes of shipping, and that it would be better to improve and extend the existing harbours; but if the pier at Fraserburgh was extended twice the length shown upon this plan, it would give a very large amount of increased area of anchorage for large shipping; it is simply a question of extent of pier.

3159. Then you confine yourself to making such a harbour as would be one of two or three which might be constructed upon the coast?—Yes.

3160. Do you think under those circumstances that Fraserburgh is in a better position than Peterhead?—I do.

3161. Are your objections to Peterhead engineering objections, or what?—They are engineering to some extent, and nautical also.

3162. What are the engineering objections to Peterhead?—The engineering objections are that you can only, except at an enormous expense, have a limited harbour in the bay of Peterhead; limited in extent, except at an enormous expense; and that the construction of works in Peterhead Bay is attended with much risk.

3163. When you speak of an enormous amount, do you mean a little upwards of 300,000 *l.*, for I think there was a plan for expending about 340,000 *l.*; do you call that an enormous sum?—I should think that an exceedingly small expenditure, if you are going to make a harbour of refuge of any large extent there.

3164. You know the plan, do not you?—I have seen the plan which was made in 1847, but I have not seen the last plan referred to.

3165. What extent of accommodation would that give?—I think I read in the evidence that it was 200 acres.

3166. Would you think that 340,000 *l.* was too much to pay for the larger accommodation of 300 acres?—I cannot conceive how such a sum of money could afford such an area of accommodation.

3167. But have you examined the harbour, to enable you to give an opinion?—I am intimately acquainted with Peterhead, from having constructed a pier at Boddam Harbour, in the south bay, for Lord Aberdeen, and having occasion to be there frequently.

3168. What other objections have you to Peterhead than that?—The first objection I have to Peterhead, is that there is always an exceedingly heavy sea there; there is a heavier sea at that particular point than at any other point north or south: that is of importance. In the second place, Peterhead is completely open to the prevailing south-east gales, whereas Fraserburgh is protected from them.

3169. I think you said that a portion of the works at Fraserburgh were thrown over by the sea, did you not?—They were.

3170. Did the repairing of those works cause a very large expense?—I think not.

3171. Were they extensive?—The breach was pretty extensive, but the work is not very heavy.

3172. Supposing you were to carry out a breakwater such as you have proposed, would you make it of much more solid material?—I would. The portion of the north pier, which was breached by the sea, was composed of very small and indifferent material. For the construction of the north pier I should use material of a much larger class.

3173. Have you that material near at hand?—We have.

3174. How near?—Immediately round the Point; at the lighthouse, there is an extensive quarry, from which the larger portion of the hearting could be furnished.

furnished. Then there is the red and white granite within a few miles for the face work.

3175. With regard to the weather that you have there, is there during a considerable portion of the year much time to work in deep water; is the weather favourable for constructing works?—As favourable as it is generally upon that coast; during the summer months the greater portion of the time is available.

3176. You would be able to work, I presume, during the south-easterly gales, unless they were very heavy?—We should.

3177. Would the water be smooth enough to enable you to work during the south-easterly gales, unless they were heavy?—Unless the gales were heavy the works could be carried on.

3178. Is the south-easterly gale the prevailing wind upon that coast?—That is the prevailing wind.

3179. Therefore except in northerly winds you would be able to work?—Except in northerly winds or north-east winds we should be able to work at the pier. That is the difficulty, and I think a very considerable one, with reference to Peterhead, that it is exposed to the prevailing south-easterly gales.

3180. *Sir Frederick Smith.*] In what depth of water would your proposed pier terminate?—It is shown upon this plan as 36 feet at low water.

3181. How do you propose to construct a pier for that distance?—Probably the lower portion of it might be constructed from a stage work with the aid of divers.

3182. Then you propose to use cut stone work?—For the face work.

3183. With close joints?—Scabbled stone or quarry-dressed.

3184. In what position will the work be; upright or sloping?—A curvilinear slope seaward, with the joints of the stone sloping backward.

3185. Will that increase the expense in any degree from the plane surface?—Not in my experience; I find that I can do the one as cheap as the other.

3186. Do you propose to use the diving-bell generally in the work?—For the lower portion; the foundation might be put in with the aid of divers, simply to place the face stones in their proper position.

3187. Would it not be a very slow operation?—Necessarily a slow one as regards that position.

3188. How long would it take you to make this pier as you now propose it?—I have not sufficiently considered the question to answer it at once.

3189. Judging from the time which has been occupied by Dover Pier, which has made but very little progress, it would be some years?—It would; but although the termination of the pier is in 36 feet water, still the greater portion of it is in considerably less; therefore it is inconsiderable compared with Dover.

3190. And after that work was completed, it would not be a harbour of refuge for large vessels?—To a limited extent it would.

3191. With the tide flowing, and at or near high water?—With the tide flowing, and at or near high water, and to a limited extent at low-water spring tides, inasmuch as there is 36 feet shown at low water at the termination of the pier; over the whole area of 11 acres it will average 23 or 24 feet.

3192. You have stated that by doubling the cost you would be able to give refuge for large vessels in considerable numbers?—By doubling the extent of the works.

3193. That is making 2,800 feet, instead of 1,400 feet?—Yes.

3194. What depth of water would that take you out into?—About seven or eight fathoms.

3195. And if constructed in the same manner, that would be a very costly operation, as compared with the other?—It would necessarily.

3196. And a very lengthy one?—It would be.

3197. *Chairman.*] What is the nature of the bottom upon which you propose to construct this breakwater?—Chiefly clay, with a layer of sand above it.

3198. The whole distance?—The first portion of the breakwater; a certain portion of it would be constructed upon some outlying rocks; the last 700 feet would be upon the sandy clay.

3199. Is it a firm sand?—There is but a thin stratum of sand above the clay.

3200. Would not there be a very heavy sea indeed in a north-easterly gale, when the sea would set dead against this breakwater?—There would be.

*J. Albernathy, Esq.,*  
C. L.

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3201. The whole weight of the North Sea would set against it, would not it ?  
—It would.

3202. Would not there be a very great liability of its being knocked to pieces ?—Not more so than the breakwaters that are at present in progress of construction. There is the same liability in all cases ; there is the same risk, which we cannot get rid of.

3203. But still you would not find upon the whole coast of England or Scotland a more exposed position than this ?—I should except Peterhead ; the set of the sea being there more heavy on account of the iron-bound coast, thick deep water directly up to it, and a violent confluence of tides.

3204. Of course that exposed situation would render the progress of the works at least uncertain in anything like bad weather ?—It would.

3205. Are you prepared as an engineer to state that you could construct a breakwater that you would insure against any storm, for such a sum of money as you describe ?—I am.

3206. *Sir James Elphinstone.*] You were examined before a Committee of the House of Commons, some two or three years ago, upon the Formartine and Buchan Railway ?—I was.

3207. At that time you had not so high an opinion of Fraserburgh ?—For very good reasons.

3208. Will you state the reasons ?—But a very limited plan had been carried out for the improvement of the harbour of Fraserburgh, and a portion of the works which had been executed were in ruins.

3209. Do you know what those works cost that were so ruined ?—No, I do not.

3210. Did not they cost a very large sum of money ?—I should think they did not ; about 4,000 *l.*

3211. Was not it very difficult to get contractors to have anything to do with Fraserburgh Harbour in consequence of the danger attending works there ?—The same work has been since reconstructed upon a most efficient plan.

3212. I find that you stated upon that occasion, “ I am not aware whether it is abandoned or not. I am aware that for many years advertisements were issued to contractors to form the breakwater, but no man was found with courage enough to undertake the work.” Was that your statement ?—I believe that the estimate that was given for the works was exceedingly low, and I believe it was a very difficult matter indeed to get any contractor to undertake them for the money ; but it was a question of money. If the estimate had been higher, they would have got efficient contractors, no doubt, to have done it.

3213. Then it was entirely because the estimate was too low that contractors could not be got to execute the works ?—It was ; and also because the proposed form of breakwater was not of sufficient strength, as it afterwards turned out, and therefore no practical contractor would undertake the risk.

3214. In speaking of Peterhead Harbour, have you ever seen the plans and sections which were laid before this Committee by Mr. Stevenson, and the data upon which he went in giving his evidence with regard to Peterhead ?—I have not ; I have seen a plan of Mr. Stevenson’s, bearing date in 1847, for a harbour of refuge in Peterhead Bay, but I have not seen the one referred to in this Committee.

*Jovis, 15<sup>a</sup> die Aprilis, 1858.*

## MEMBERS PRESENT.

Mr. Baring.  
Admiral Duncombe.  
Sir James Elphinstone.  
Mr. Joseph Ewart.  
Mr. J. H. Gurney.  
Mr. Hassard.  
Lord John Hay.  
Mr. Kendall.

Mr. Liddell.  
Mr. Macartney.  
Mr. Philips.  
Mr. Augustus Smith.  
Sir Frederick Smith.  
Lord H. V. Tempest.  
Mr. Traill.  
Mr. Wilson.

JAMES WILSON, Esq. IN THE CHAIR.

Sir Samuel Morton Peto, Bart., called in; and Examined.

3215. *Chairman.*] WHAT is your profession?—Contractor for public works.

3216. Have you had great experience in the construction of harbours?—  
I have had considerable experience.

3217. Upon what harbours have you been engaged?—I had the superintendence of the construction of the harbour to which my evidence will have reference. I have also paid very great attention to the construction of harbours in various parts of the kingdom, and also on the Continent, and my connexion with various works in railways leading to those harbours in the course of my profession has led me to feel a deep interest in the subject.

3218. Are you familiar with the Harbour of Lowestoft?—I am.

3219. Can you state to the Committee any facts as to its size and general features?—If the Committee will allow me, I will hand in a chart of the coast in the vicinity connected with it (*handing in the same*), and also a plan of the harbour itself (*handing in the same*). I should say with regard to Lowestoft Harbour, I have known it for 14 years: it consists of two extensive piers: the north pier, extending 800 feet into the sea, and the south pier, 1,250 feet into the sea; the width of the outer harbour is 800 feet, and the width of the entrance 150 feet placed in a south-easterly direction.

3220. Can you give the Committee any information as to the number of vessels which enter or use the harbour?—With the permission of the Committee I will presently hand in some statistics which will give the numbers which have entered for refuge every year.

3221. I need not remind you that the subject of this Committee has reference to harbours of refuge, and therefore we wish your opinion to be directed chiefly to the question of a harbour of refuge as distinguished from the capabilities of Lowestoft as a port of trade?—My evidence will be directed entirely to that point.

3222. Is it a harbour which is easy of access at all times?—The harbour is of easy access under sail with the wind from almost any quarter; and the sea, on account of the sandbanks, is never so heavy but that at any time an efficient steam tug can go out and come in with a ship. Vessels with loss of rudder, waterlogged, leaky, and in a sinking state (or from other causes which render them unmanageable) can be got into the outer harbour and laid on the mud on the north side; a number of such cases have occurred of late years, and vessels drawing as much as 20 feet of water have been brought in and saved, discharged their cargoes, and have been docked for repairs, which but for such a harbour must have been lost. All vessels whose draft of water will admit of their coming in and going out of the gateways or through the roadsteads, will find water always in the outer harbour.

3223. Does a very large traffic pass along that coast?—Very large indeed.

3224. The colliers all pass that coast?—They all pass close in shore.

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Sir S. M. Peto,  
Bart.

15 April 1858.



Sir S. M. Peto,  
Bart.

15 April 1858.

3225. How far is Lowestoft from the Yarmouth Roads?—Practically the Roads may be considered as one, Yarmouth and Lowestoft Roads communicating with each other.

3226. Do the sandbanks off Lowestoft offer a natural protection to shipping?—They do so to a great extent; hence they can at all times make the harbour, or a steam-tug can fetch them in.

3227. Have you frequently a large number of vessels lying in the Lowestoft and Yarmouth Roads, seeking protection against storms?—We have so. Our great difficulty at Lowestoft is simply this: that our capabilities in the inner harbour, although sufficient for the purposes of the trade, are not sufficient for the purposes of refuge; and in severe gales we are so utterly choked up, that we have to stop taking them; we are frequently obliged to refuse vessels on account of the want of space.

3228. Is there any other harbour in the neighbourhood which vessels can easily take?—None.

3229. It is the only harbour on that coast that vessels can take?—It is the only harbour on that coast that vessels can take.

3230. Then vessels in distress in the Yarmouth or Lowestoft Roads have no harbour that they can make for, except Lowestoft?—They have none other that they can make for.

3231. And at present the inner harbour is too small to take more than the vessels engaged in the local trade?—It takes a considerable number more; but whenever we have a severe gale, the inner harbour is not sufficient for the extent that is required as a harbour of refuge, and we are obliged to refuse vessels after a certain time.

3232. But at the present time there is room for a considerable number of vessels unconnected with the trade of the place?—Quite so.

3233. Is it the fact that vessels frequently take refuge in Lowestoft Harbour?—Very frequently; a table which I shall hand in to the Committee will show that fact.

3234. I mean for the exclusive purpose of refuge?—I have here a statement of the number and value of the vessels and cargo coming into the harbour of Lowestoft for refuge from stress of weather, and in crippled and disabled states, during the three years previous to the carrying out of the outer harbour, and during the years subsequent to the formation of the outer harbour. I have also a statement showing the number of vessels which have taken refuge in this harbour during each of the years 1852 to 1857 inclusive, showing the extent to which Lowestoft has been used as a place for shelter.

3235. What is the number?—The number of vessels coming in exclusively for refuge in 1852 was 496, with a tonnage of 38,382; in 1853, 601 vessels, with a tonnage of 50,091; in 1854, 871 vessels, with a tonnage of 74,733; in 1855, 632 vessels, with a tonnage of 56,714; in 1856, 698 vessels, with a tonnage of 69,334; in 1857, 584 vessels, with a tonnage of 53,980.

3236. Then, upon the average, about 600 vessels a year have taken refuge in Lowestoft harbour, for the express purpose of refuge, and without any reference to the local trade?—For refuge only.

3237. Passing vessels?—Passing vessels.

3238. Do many wrecks occur immediately off the harbour?—Not immediately off the harbour, but on the whole of the coast. The table will show that there is no other part of the coast of England where so many vessels are lost as that.

3239. Does the harbour present great facilities for improvement?—The outer harbour does not require any expenditure at all for the purposes of refuge; all that is required there is a small expenditure of money, and the position which I should recommend for that would be that which is marked upon the plan as Kirkley Ham, which is here (*pointing out the same*.)

3240. If that improvement were made, what extent of additional accommodation would that afford?—Kirkley Ham contains about nine acres. An expenditure of from 35,000*l.* to 40,000*l.* would render the whole of that space available for vessels as a place of refuge.

3241. How many vessels of the ordinary size, say 300 tons, coasting vessels, would that accommodate?—My impression is, that you would easily place there 300 or 400 vessels at a time.

3242. In eight acres?—Yes, in eight acres. I would devote that exclusively to that purpose. There are 123 acres in the whole of the inner harbour; but my

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own advice would be to appropriate that particular part of it, and devote it entirely to vessels seeking refuge.

3243. But when you speak of 123 acres in the inner harbour, how much of that 123 acres would be affected by the improvement you suggest?—What I should suggest, would give there altogether about 15 acres of additional water space for about 35,000*l*.

3244. How many vessels will lie in this outer harbour marked upon the plan?—We do not use the outer harbour, generally speaking, for vessels lying; they come there, and pass into the inner harbour.

3245. In point of fact, the outer harbour at present is not used for refuge at all?—No, except for vessels coming in and passing into the inner harbour. Oftentimes we have vessels coming in in such a disabled state that we cannot place them in the inner harbour, from their having come in in such a disabled state.

3246. The outer harbour is chiefly used now for the purpose of the fishing trade, and for embarking cattle?—For the purpose of embarking the cattle, and the general trade, and vessels coming in and coaling.

3247. Have you a very large fishing trade?—Very large indeed.

3248. How many boats belong to the harbour?—It is not vessels belonging to the harbour; we have vessels from Brixham and various parts of the coast coming, and from the whole of the south coast; they come there during the herring and mackerel fisheries to a very large extent indeed.

3249. Do you know what number of vessels, upon the average, frequent that coast?—During the fishing season the railway carriage averages from 1,200*l*. to 1,500*l*. a week for the carriage of fish from the port of Lowestoft; that is the only way in which I know it.

3250. That is independent of any carried from Yarmouth?—Yes; Yarmouth is much larger still.

3251. Are there many fishing vessels lost off that coast?—At times there are a good many lost.

3252. Of course there are very frequently a very large number of vessels riding in the Roads?—We have, during the season, as many as 500 sail fishing upon the coast, carrying about 4,000 men. The fishing ground is from 30 to 40 miles from the land. Those vessels use the harbour extensively for shelter, of course.

3253. Have you also frequently a very large number of merchant vessels and colliers lying off in the Roads?—A very large number indeed.

3254. The sands themselves offer a considerable shelter in a particular state of the wind?—They do always, in fact a considerable shelter, I may say.

3255. But you think not sufficient for the requirements of the trade?—Certainly not in a severe gale.

3256. Are there many vessels lost upon the coast by collision?—We have had more during the last four or five years, since the screws have come more into use, than we had before; they run in at night.

3257. Is that because they attempt to go where a sailing vessel would not go?—No, not at all; but the sailing vessels have not the same amount of risk as screw vessels, generally, in coming into crowded roadsteads and coming through at night. We have had repeated cases of collision from screws, more so than from any other class of vessels.

3258. You frequently, you say, have had occasion to reject vessels that were seeking a harbour of refuge, in consequence of there not being room?—Yes; I can give the Committee one case in November 1851: a gale from the north-east came on when the vessels in the Roads were very numerous, and many took shelter in the harbour, until it became so full within (that was a matter I observed myself), and up to the pier-heads, that it was impossible for another to enter, and many vessels in distress with loss of anchors, and others damaged by the gale, were warned off by the harbour-master and pilots; three of these vessels were stranded on the beach under the new town on that occasion, and many others in great distress sought Harwich. Similar occurrences have taken place since, and under similar circumstances, particularly in two gales in the month of February 1853, when much of the distress might have been relieved, had the harbour been more capacious.

3259. You speak now of one particular occasion?—That was one which I observed myself and noted; therefore I give that particularly; that was one of a great number.

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3260. Then it is really a fact that vessels offering themselves at the mouth of the harbour in distress, for the convenience of which the harbour would be available otherwise, have been rejected and warned off in consequence of there not being room for them to enter?—Upon many occasions.

3261. Have you any idea of the money-value of the ships in that immediate vicinity?—No, I am not able to give you any answer to that question; I have a statement here of vessels coming in in a crippled and disabled state, which would have been entirely lost if it had not been for the harbour showing in each year the money-value of vessels coming in in such state, and which in the judgment of nautical men would have been totally lost if that had not been so sheltered.

3262. They came in merely for refuge?—They came in merely for refuge; they were in such a crippled and disabled state, they would have been totally lost had the harbour not been existing.

3263. Can you give the Committee the inverse position; namely, how many vessels which have been precluded from coming in?—No, I do not know that; what I want the Committee to understand with reference to the harbour itself is, that no money at all would be required. All that is required is an additional space dredged in the inner harbour, so as to enable accommodation to be given for vessels for refuge.

3264. For how much?—I think you might get, by an expenditure of from 35,000*l.* to 45,000*l.* accommodation for from 250 to 300 vessels.

3265. That would be equally available for the Yarmouth Roads as for the Lowestoft Roads?—Quite so.

3266. You do not know of any other point upon that coast from the mouth of the Thames to the Wash, where any other harbour could be so easily made?—It would be possible in several positions with a very large expenditure of money to make an efficient harbour, but I know of no place where you could get the accommodation for so small an outlay as you could at Lowestoft, from the fact of the outer works being all constructed.

3267. You say the harbour is at present available, so far as it goes, for vessels along the whole coast, from the Thames to the Wash?—It is so.

3268. Admiral *Duncombe*.] Do you wish the Committee to understand that, in your opinion, with those alterations made at Lowestoft, it is capable of being made a national harbour of refuge. I say "national" as contradistinguished from local, for the local trade. I believe that it would be made ample by increasing the inner harbour space for all vessels using that coast for trade.

3269. By dredging the eight acres which you speak of at Kirkley Ham?—I merely suggest to the Committee that that should be the commencement of the thing; of course the limit would be the demand, and I say that for 35,000*l.* you may give eight acres of additional space, and from time to time dredge additional space as it is required.

3270. What is the distance between the two outer pier heads?—One hundred and fifty feet.

3271. Then it appears, as you go through the outer harbour to the inner harbour, there is a lock over which the London road runs; is that on a swing-bridge?—It is so.

3272. Then, can you say that eight acres above that is really available as a harbour of refuge?—Certainly.

3273. What is the space across the lock?—Fifty feet, with a depth of 26 feet; and at lowest low water over the sill there are 12 feet.

3274. With reference to the great number of vessels that might, in times of emergency, require to use both the outer harbour and the newly made inner harbour, I apprehend they must be there moored in tiers?—Quite so.

3275. But that, with vessels running in in a gale of wind, is not quite so easily done as people may imagine?—We do not find any difficulty, except want of space; we have had 300 and 400 vessels in at a time, and we have had no difficulty, except that we have not had a sufficient space dredged there in the interior.

3276. What is about the average tonnage of vessels upon that coast?—The average tonnage of vessels upon that coast is not more in general than from 200 to 250 tons. I have seen vessels of 1,000 tons there; but there are very few vessels upon that coast of more than 250 tons: they are principally coasting vessels.

3277. You

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3277. You have stated, in answer to questions from the Chairman, that the outer harbour is not used as a harbour of refuge now?—Very little, except for fishing boats, and also for large vessels coming in in such a disabled state that they cannot get into the inner harbour. I saw last winter one Austrian ship of 1,500 tons which came in in such a disabled state, that she was immediately moored in the outer harbour; but had she had a rudder, and not been almost water-logged, she would have been taken to the inner harbour.

3278. The roadstead outside Lowestoft is, I believe, a very fine roadstead of itself?—Very much so.

3279. And tolerably well protected by the sands from the easterly and north-easterly gales?—Yes, to a large extent they are protected; it is only in very severe gales, if they make the roads, that they want to leave the roads at all.

3280. I believe that vessels tolerably well found are able to ride out a gale there?—Not always; I have seen a gale so severe, that they have been obliged to leave, and have been compelled to seek shelter.

3281. Do you know Yarmouth?—Very well indeed.

3282. As between the two, do you give the preference to Lowestoft?—I do not give any preference to the one or the other; all I say with regard to Lowestoft is, that a very small expenditure in the inner harbour will make it an efficient harbour of refuge for the coasting trade.

3283. Lord John Hay.] What is the number of vessels that are unable, in the course of the year, to take advantage of the existing accommodation?—The number of vessels seeking refuge for the last six years has been 3,882, being an average of 647 per annum: it is principally in the winter that they seek refuge.

3284. Those have been able to take advantage of the existing accommodation?—They have.

3285. But I wish to know the number of vessels that there has not been room for, which have come there and been obliged to be warned off?—I cannot answer that question. I have myself repeatedly seen in the winter months the harbour so full that we have been unable to take any more; and I have seen as many as 80 or 90 vessels in the course of a day applying, and we have been obliged to refuse to take them in.

3286. They apply to enter by signal, I presume?—Yes, and there are signals put up at the end of the harbour to say that we cannot take them.

3287. In what quarter was the wind at the time?—Generally in the east, blowing on to the coast.

3288. They would have been able to go on to Yarmouth, I suppose?—They could not make Yarmouth in its present state; it would not have been available. Yarmouth at the present moment is a bar harbour.

3289. But they might make the roads; they would be very small vessels, I suppose?—They are vessels, generally speaking, of about 200 tons; we have very few vessels except of that character. Now and then, of course, larger vessels are anchored inside the roadstead for shelter.

3290. Is there a heavy sea at the entrance of the harbour?—No, I have never seen the sea so heavy that a steam tug could not take a vessel in if we had room at Lowestoft; I mean when a steamer could not go out and bring a vessel in.

3291. If that were the case, one would almost imagine that a vessel would be able to ride out the gale in the roadstead, if she could be towed in by a steam tug?—It is very often the case that the wind is very severe, so much so that they are not able to keep their anchorage, or at least they are afraid of not being able to do that; at the same time the sands afford sufficient protection, so that a powerful steamer can always go out and do that.

3292. Mr. Hassard.] I think you have stated already what the width between the piers at present is?—One hundred and fifty feet at the entrance.

3293. In the case of a vessel being obliged to run for the harbour, does she generally require the services of a steam tug?—Not always.

3294. Is it generally a fair wind in?—A sailing vessel can generally make the harbour, but they are always glad to avail themselves of a steam tug.

3295. Do I understand correctly that the only advantage to be attained by what you recommend is an additional area of eight acres?—No. What I state to the Committee is, that at an expense, I should say, taking the average, of something like from 3,000*l.* to 4,000*l.* per acre, you can get space to any extent you please inside, there being 123 acres. But my advice is, in the first instance,

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that an additional space of from eight to nine acres should be acquired, at a cost of from 35,000*l.* to 45,000*l.*

3296. The work which you recommend at the present time is the acquirement of eight acres?—Yes.

3297. And you state that, in that space, 300 vessels could be accommodated?—Yes. I do not wish the Committee to understand that I believe that Lowestoft would be a national harbour of refuge, or anything of that kind, when you had spent that money: all that I mean is this, that for the purposes of the trade of the coast at the present moment it is a most valuable auxiliary, and that at a small expense it would be very much more efficient than it is at the present moment.

3298. And that efficiency could be increased to 120 acres by further expenditure?—Yes.

3299. Mr. *Philips*.] I think you said that, in a harbour of eight acres, 250 vessels could be accommodated?—Yes.

3300. Sir *James Elphinstone*.] Are the vessels that take refuge in Lowestoft Harbour the worst-found description of coasters?—They are of all kinds; but the character of the vessels using that coast principally is vessels of from 200 to 300 tons.

3301. Under what circumstances do they take refuge there?—When they have lost their anchors, and when they have lost their rudders, and when from various circumstances, the wind being extremely severe, they are afraid of continuing in the roadstead, they then run for the harbour.

3302. Does any of the number you have stated apply to vessels which have been partially disabled from the loss of anchors and rudders and other things?—I state that those who have made it a harbour of refuge average 647 per annum during the last six years; that does not comprise all vessels that were damaged.

3303. Were any of those vessels lost in taking the harbour?—None that I have heard of.

3304. A stout ship can always ride in Yarmouth Roads, cannot she, or in Lowestoft Roads?—I have seen the time when they could not have done so; there are a great many, of course, that would ride out any gale. I hold in my hand a paper which I should like, with the permission of the Committee, to read, which would answer this question. I have here a statement of the number and value of vessels and cargo coming into the harbour of Lowestoft for refuge from stress of weather, and in crippled and disabled states, during the three years previous to the carrying out the outer harbour, and during the years subsequent to the formation of the outer harbour. In 1844, six vessels put in with damage, the value of the property being 6,300*l.*; in 1845, five vessels, value 4,350*l.*; in 1846, three vessels, value 4,100*l.* Since the piers have been carried out, in 1847, 14 vessels put in with damage, the value of the property being 14,300*l.* In 1848, 17 vessels, value 21,050*l.*; in 1849, 42 vessels, value 61,790*l.*; in 1850, 57 vessels, value 68,870*l.*; in 1851, 44 vessels, value 42,010*l.*; in 1852, 32 vessels, value 42,375*l.*; in 1853, 52 vessels, value 73,060*l.*; in 1854, 65 vessels, value 65,650*l.*; in 1855, 41 vessels, value 44,500*l.*; in 1856, 50 vessels, value 56,240*l.*; in 1857, 46 vessels, value 53,110*l.* The total value of the property was 557,705*l.*

3305. Have you any return of the number of vessels not in a crippled and disabled state?—No; I gave the number which came in for refuge, namely, 640 per annum; these were in a crippled and disabled state, and an aggregate value of 557,000*l.*

3306. Mr. *Liddell*.] Is there any bar to Lowestoft Harbour?—None whatever.

3307. What is the depth of water there?—Between 18 and 19 feet at dead low water.

3308. Is the harbour formed by a river running in there?—No. If there had been a river there must have been a bar. Wherever you get a river, you always find that matter is carried in suspension, and that a bar is formed. It is a simple question in a harbour of this kind as to the amount of dredging consequent upon the natural deposit; and we find that, with an annual expenditure of between 300*l.* and 400*l.*, we keep the outer and the inner harbour dredged; and it is at this moment at the maximum depth.

3309. Is there any appearance of the harbour silting up?—No; the harbour has

has been formed since 1847, and it is now in as efficient a state as it was at first.

3310. When you speak of affording space for 200 vessels, do you think that the eight acres which could be cleared at an expense of 35,000*l.* would give sufficient room for 200 vessels to lie there, or do you anticipate a still further chance of expenditure there?—For 35,000*l.* you could get additional space there; in every respect make a perfect work for 250 vessels at least; and then if the requirements of the trade called for a larger space there, a further expenditure would be necessary. But my opinion is, with reference to the harbour, that, for all the purposes of that coast, as a harbour of refuge for trading vessels, it would be ample.

3311. You consider it peculiarly adapted, in consequence of the mouth of the harbour getting that natural protection from the line of sandbanks?—Exactly so; you get 10 hours of slack water there, and a vessel can always make the harbour without any difficulty at all, as I have already stated to the Committee.

3312. Mr. *Macartney*.] You have founded your evidence and formed the opinion which you have given to the Committee principally upon your occupation as contractor for large harbour works?—Not for large harbour works, but from the extensive opportunities which my engagements as a contractor have afforded me for the inspection of harbour works.

3313. But are you a naval engineer?—Certainly not.

3314. Then it is merely from your intimate knowledge as a considerable contractor that you have formed that opinion?—Yes. I should state that this harbour was formed by the late Mr. George Stephenson, with the assistance of his son, Mr. Robert Stephenson, and Mr. George Parker Bidder; Mr. George Stephenson was of opinion that no bar would ever form there, and his opinion, from now 12 years of experience, has been found to be based upon solid data. I should state to the Committee, that if they felt the matter to be of sufficient importance, I am sure that Captain Washington, of the Admiralty, would be able to give them a great deal of information upon it, because I know that he has felt a deep interest in this question of a harbour there, and has been down there frequently and seen it.

3315. Mr. *Gurney*.] Is it not the fact that of the number of wrecks and the great loss of life which occur in the neighbourhood of Lowestoft, a large portion is from vessels which have actually anchored in the roads, and after having so anchored, have, from some reason or other, broken loose from their anchorage?—It is so.

3316. And in case this additional space were given in the inner harbour, are you of opinion that there would be any difficulty in subsequently arranging for such dredging as might be necessary to keep that clear after it had been once gained?—No difficulty at all.

3317. Mr. *Baring*.] What is the depth of the outer harbour?—From 19 to 20 feet at dead low-water spring tides.

3318. What is the extent of room in the outer harbour?—Not a great deal, from the fact of its being almost exclusively occupied by fishing vessels, and for the cattle, and other trades. During the fishing season we very often have as many as from 200 to 250 fishing boats in there at a time unloading with fish; and when there is severe weather, we have a great number of others coming in, and they occupy a certain space which is allotted to them. Then there is another space allotted to vessels for cattle going to the Continent, so that we have not much space to spare, and therefore we never use the outer harbour in cases of disabled vessels, except in cases where we cannot take them into the inner harbour.

3319. Mr. *Kendall*.] Would the dredging be a constant work?—The deposit in the inner harbour is about an inch a year.

3320. Would the annual expense be large for dredging?—Certainly not; very trifling indeed.

3321. Is there any revenue to meet that expense?—The present charge to vessels coming in there for refuge is 2*d.* a ton; that would be quite ample to pay the company doing that.

3322. Sir *Frederick Smith*.] What was the general depth at low water within the outer harbour when it was first made?—The outer harbour, from the entrance

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entrance up to the lock of the inner harbour, will admit of vessels drawing 16 to 17 feet of water, and has done so from the very commencement.

3323. What is the depth of the water in the channel leading into the roads?—Very large; vessels are able to come close to the harbour. I have seen repeatedly Her Majesty's steamers coming in there specially, during the Russian war, for coaling.

3324. What depth of water did they draw?—From 17 to 18 feet.

3325. And that at all times of tide?—They would be able to come in at all times of tide.

3326. In southerly und south-easterly gales the sea breaks into the channel, does not it?—I would rather not answer that question; I do not feel quite competent.

3327. The tendency to silt up, I think you say, is only an inch per annum?—One inch only; it has been found that the average of silting is an inch a year.

3328. What is the expense of dredging in the outer harbour?—I should say about 200*l.* a year keeps it clear.

3329. What is the depth across from pier to pier?—One hundred and fifty feet at the entrance: the average depth, at dead low water, is from 19 to 20 feet.

3330. Does that extend the whole way across?—The whole way across.

3331. The outer harbour is repeatedly dredged, is it not?—It is dredged every year; it takes from about three to four weeks every spring; we carry the dredger across every year. About 300*l.* a year keeps the outer and inner harbours in a perfect state of dredging.

3332. Have any mud banks formed in the inner harbour?—No, nor is there any tendency; the silting is perfectly equal.

3333. The opening can therefore be maintained in the harbour by means of dredging the outer harbour?—Once a year, it takes about three weeks to do it; we pass the dredger from the lock to the outer entrance, and that keeps it in a perfect state.

3334. What was the first cost of the formation of Lowestoft Harbour?—About 200,000 *l.*

3335. Did not the Exchequer Loan Commissioners make some advance for the purpose?—No; the original harbour which was formed was a perfect failure; upon that the Exchequer Loan Commissioners advanced a large sum, and they sold the harbour, and the harbour was purchased by the Norfolk Railway Company, under the advice of Mr. George Stephenson, its then chairman, and he, with the assistance of his son, Mr. Robert Stephenson, and Mr. George Parker Bidder, advised the company, and the company executed the works themselves at an expense of about 200,000 *l.*, and those works have always been kept in a perfect state from that time to the present, and at an expense of 300 *l.* the dredging has been maintained.

3336. *Chairman.*] Are there any other observations which you wish to make?—There are two papers which I think will be of some service, as showing the amount of the trade of the port generally, and the number of vessels using it; I think they will be of service, as showing the importance of the place irrespective of the question of refuge. One is a statement showing the returns of the port for the four years ending 3d December 1855, and the other is a statement of vessels compelled to pass Yarmouth Harbour being unable to enter there, and which took refuge at Lowestoft Harbour; they will give the Committee an idea of the general trade, and of the efficiency of the harbour for general purposes (*delivering in the same*). The return which I gave to the Committee of the number of vessels coming in for refuge in a disabled state, amounting to an aggregate value property of 55,700 *l.*, is of vessels consigned only to one agent; there are four or five other agents besides.

Vide Appendix.

3337. That is not the entire number, but the number consigned only to one agent?—Only to one agent.

Mr. David James, called in; and Examined.

3338. *Chairman.*] WHAT are you?—I am a Surveyor for Lloyd's at the present time.

3339. Upon what coast?—Cardigan.

3340. For the port of Cardigan?—The ports of Cardigan, Fishguard, New-quay, and Aberaeron.

3341. Have



3341. Have you navigated that coast?—Yes, even since I was quite a boy, from 10 years old. *Mr. David James.*

3342. Then you know the coast well?—I know all the coast well.

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3343. Have you navigated the coast in sailing vessels or in steamers?—In sailing vessels.

3344. In the coasting trade or foreign trade?—In both the coasting and foreign trade.

3345. *Mr. Kendall.*] What particular part of the coast do you know?—Cardigan Bay well, and all the way round from Holyhead to Milford Haven.

3346. Is there any necessity for a harbour of refuge upon that coast?—Yes, I should say so; I have been in want of one a great many times myself, and many others that lost their lives; there is no place on the coast more needing one than Cardigan Bay.

3347. Are there a great many ships wrecked, to your knowledge, upon that coast?—Yes, a good many.

3348. Whereabout do those shipwrecks occur?—Just inside of Kemess Head, on the sands of Cardigan Bay, and about the coast, through the want of a harbour of refuge.

3349. Take the points between Milford Haven and Holyhead, which place do you think is the best place for a harbour of refuge?—I consider inside of Kemess Head would be the best you could get on this coast.

3350. Will you state why, from your experience, you think Kemess Head is the best place for a harbour of refuge?—For one thing; if you are inside of Kemess Head, with the wind at north-east, you can sail out of it, and at some other places you cannot; and vessels in distress in the Channel many times, that may run on the coast, and ships driving towards Cardigan, would be in the middle of the bay, and therefore Kemess would be a good place for a harbour of refuge.

3351. What kind of vessels?—Coasting vessels, and vessels running up and down the St. George's Channel. I saw two large vessels lost there, with all hands, lately, wanting a harbour of refuge.

3352. Is there any other place between Holyhead and Milford Haven which you think so good as Kemess Head?—No, for general purposes.

3353. Then you think that, of all the different places of refuge, Kemess Head is the best?—Yes, decidedly, for the coast is clear, and good depth of water for the largest ship to run for without any difficulty.

3354. What other places are there?—There is Fishguard, to the westward of Cardigan, and Newquay, to the eastward.

3355. Are there any others?—No, not equal to those.

3356. Take Fishguard; what is the objection against Fishguard?—The objection, I should say, against Fishguard is, that any vessels bound westward, with the wind northward, could not come out to make their passage, when vessels in Cardigan Bay could sail free, and clear the land.

3357. Does it very often happen that vessels are windbound at Fishguard?—Very often; with a southerly and westerly wind they find shelter there; it is a very good roadstead.

3358. If they were sheltered with this wind in Kemess they would be enabled to get out?—They would.

3359. Are there any winds at all in which they would be windbound in Kemess if there was a harbour of refuge there?—Yes, with the wind from south-west, and all northerly winds up to east-south-east.

3360. What is the objection against Newquay?—It is so very far embayed that no vessel would go there if she could help it, and there are shoals between St. Tudwall's Head and Newquay, which would prove dangerous for strangers in heavy west and northerly gales to attempt that coast.

3361. I understand you that there are shoals between Newquay and St. Tudwall's Roads, and that that is an objection to Newquay?—Yes, and so much exposed to eastwardly winds.

3362. I think your evidence comes to this, that between Holyhead and Milford Haven you only know of three points where there is a harbour of refuge very much required, and you only know of three points where a harbour of refuge could be made, namely, Kemess Head, Fishguard, and Newquay; against Fishguard and Newquay there are solid objections, and you think that Kemess Head would be the best; is that so?—Yes, a harbour of refuge could be made in St. Tudwall's.



Mr. David James. 3363. Mr. Ewart.] How far is Kemess Head from St. Tudwall's Roads?—About 35 miles.

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3365. I think you say that vessels with a north-easterly wind could get out again from Kemess Head?—Yes, with a north-north-east wind bound westward, and with a west-north-west wind bound northerly.

3366. Could she get out with a north-westerly wind?—No, not if it blows hard.

3367. Is it your opinion that Kemess Head would make a better harbour of refuge than St. Tudwall's Roads?—Yes, for general purposes.

3368. I speak for general national purposes; do you think that Kemess Head would make a better harbour of refuge than St. Tudwall's Roads?—I do.

3369. But being embayed would be an objection to it for a refuge harbour; vessels would not be enabled to get out with a change of wind so well. I speak of a harbour of refuge for general purposes, and I want to know whether it is your opinion that for a harbour of refuge for the general purposes of the whole kingdom, at that particular part of the coast, St. Tudwall's Roads would not be a better situation than Kemess Head?—I should say Kemess Head is the best place on this coast for a harbour of refuge.

3370. Would not vessels in St. Tudwall's Roads be able to get out with not only north-easterly winds, but north-westerly winds?—Yes; but they would be blocked up with a south-easterly wind; it blows right in there.

3371. Suppose a harbour of refuge were to be made at St. Tudwall's Roads, would it be useful?—There is a good roadstead there as it is, but it is open to the south-east wind; a harbour of refuge would be useful for vessels that could not get to Kemess Head.

3372. If it was protected from south-easterly gales, would not St. Tudwall's Roads, in your opinion, make a better harbour of refuge than Kemess Head?—No; I consider Kemess Head would be the best for general purposes.

3373. Mr. Philips.] Is that a plan of a proposed breakwater or harbour at Cardigan (*handing a plan to the Witness*)?—Yes.

3374. The red mark indicates, I presume, the new works?—Yes.

3375. Has any estimate been formed of the expense of that?—I do not know of any.

3376. In order to make Cardigan Harbour a secure place, certain works would be required, would there not?—Yes, a breakwater would make it safe for shipping in every state of tide and weather.

3377. Is this red mark a plan of the new works?—Yes.

3378. Do you know what amount of space there would be between this pier and the land?—About 120 acres.

3379. Have you any list of wrecks in Cardigan Bay?—I have not exactly a list, but I recollect a good many wrecks there. I have seen nine ships wrecked there at one time, and a good many lives lost; I have seen two vessels lost there; one called the "Clarence;" she was lost with 10 men; and another, the "Thetis;" she lost 11 men.

3380. Would those wrecks have been prevented by the erection of such works as are described in that plan?—They would, without a doubt, save both ships and lives.

3381. Sir Frederick Smith.] You have stated that there have been a great many wrecks in Cardigan Bay?—Yes, a good many to my knowledge.

3382. In what year?—There was the "Clarence" in 1849; she lost 10 hands; and the "Thetis" in 1850; she lost 11 hands; packet and "Margaretta," eight lives lost.

3383. Can you give me any losses since 1852 up to 1856?—No, I do not recollect any losses since that except one ship, called the "Sussex;" all hands saved.

3384. Mr. Kendall.] You do not seem at all clear as to the relative advantage of St. Tudwall's Roads and Kemess Head; suppose there were a harbour made at St. Tudwall's Roads, would not that be better for general purposes than one at Kemess Head?—No, I consider not; nothing equal for general purposes.

3385. Are you in doubt upon that or not?—No, I am not in doubt upon it. I say Kemess is far superior for all the traffic of the channel up and down. St. Tudwall's Roads is now a very good roadstead as it is; but I say that Kemess would be far superior if there was a refuge in that part of the bay, there

there are so many banks and shoals in the eastern part of the bay, between St. Tudwall's and Newgay. Vessels being embayed would find it very dangerous to try for St. Tudwall's with a strong northerly gale.

3386. You are clear that Kemess Head would be better for a harbour of refuge than St. Tudwall's Roads, provided one was made at Kemess Head?—Certainly.

3387. *Sir Frederick Smith.*] Where is Kemess Head?—Within four miles of Cardigan town, and two miles west of Cardigan Island.

3388. *Chairman.*] Have you any other statement to make with reference to the advantages which this site offers for a harbour of refuge?—It would be a very great advantage for the coasters that come up and down the the St. George's Channel; I have seen the disadvantage of it many times myself; I have been obliged to keep off the coast, and obliged to run for Milford, when I was bound to Cardigan, fearing I would be wrecked.

3389. That would apply to a harbour of refuge in any part of that coast?—Yes; and there is not a deep-water entrance upon the coast anywhere for a vessel to seek shelter between Holyhead and Milford.

3390. Except Cardigan?—Cardigan is dry at low water too; we have no place to run to to save our lives, on that coast, in westward and northwardly gales.

3391. You think that Kemess offers the best position for a harbour of refuge upon that coast?—I think so. Vessels can sail out for the west, with wind at north, and sail for the north, with the wind at west-north-west, clear of Barry Island.

3392. And you are well acquainted with all the other situations that have been referred to?—Yes; I know the places well; I have been trading up and down there all my lifetime, since I was a boy.

*Mr. George Bowen*, called in; and Examined.

3393. *Chairman.*] WHAT experience have you had which enables you to speak to the best site for a harbour of refuge upon the Welsh coast?—I was bred and born at Cardigan, and have been master of a vessel for 36 years, and I know the coast and every other coast in Great Britain.

3394. Were you in the coasting trade?—Both in the coasting trade and in the foreign trade.

3395. Between what points of the coast have you sailed in the coasting trade?—I have sailed all round Great Britain and Ireland; I know the Bay of Cardigan thoroughly.

3396. Were you particularly engaged in the coasting trade upon the coast of Wales?—I was.

3397. Between what points?—Between Milford Haven and Holyhead.

3398. You went backward and forward in a trading vessel?—I did.

3399. Will you inform the Committee what, in your opinion, is the best site for a harbour of refuge upon that coast?—I believe inside of Kemess Head.

3400. What are the grounds upon which you come to that conclusion?—Because it stands near about the centre of the bay; and with northerly and westerly gales, which generally prevail in that bay, a vessel could not miss falling upon Cardigan with these gales.

3401. You think there is no other place which offers such great advantages? I think there is not.

3402. You know all the other parts well?—Every one.

3403. *Lord John Hay.*] Is not St. Tudwall's Roads a good place for a harbour of refuge?—It is a very good place; but it is not likely that ships in a gale of wind, caught in Cardigan Bay, could ever reach St. Tudwall's Roads; that is the weather side.

3404. In a south-westerly gale, if you were to leeward of Kemess Head, where would you run to?—You could run anywhere with a south-westerly gale from Kemess Head, except to the westward.

3405. But suppose you would not be able to make that point, you would have to run into St. Tudwall's Roads, I suppose?—We could, with a south-west gale off Kemess Head, take our pleasure and go where we pleased, because it is over the land, that.

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3406. But

*Mr. David James.*

15 April 1858.

*Mr. G. Bowen.*

Mr. G. Bowen.

15 April 1858.

3406. But I am supposing that you would be so far up in the bight of the bay as to be unable to go off upon the port tack?—We could not miss to go away from that place with a south-west gale, because it blows over the land.

3407. Supposing you were about Newquay, and the wind was blowing hard from the south-west, where would the vessel be obliged to run for refuge?—I do not think she would be obliged to run at all with a south-west gale; she could come to an anchor anywhere under the land.

3408. With a north-west gale, what would be the result?—A north-west gale is the only dangerous point.

3409. Are you aware of any plan which has been proposed for making a harbour of refuge at Kemeess Head?—Yes.

3410. What amount of room would be supplied by that plan?—Several acres; about 150 acres.

3411. Is the bottom good for anchorage?—Very good.

3412. What is it?—Clay and sand mixed; very good holding ground.

3413. Supposing any plan was carried out, would you be able to get under weigh easily, after the strength of the gale was over?—Quite easily from Kemeess Head, but not so from Fishguard.

3414. Would that harbour be beneficial for the national trade as well as for the coasting trade?—Quite so.

3415. What quantity of vessels would be likely to take refuge there in the course of a year, supposing that that harbour existed?—I suppose it would take several hundred at a time.

3416. Is it the case that several hundred of vessels take refuge there at the present time, in the course of a year?—No, they always keep away from it; I have seen vessels outside the bay there obliged to be off; they cannot venture into the bay at all.

3417. But still those vessels are not lost?—Some of them are lost, and some of them not; the best of them can get away, and some not; I have seen many of them lost.

3418. What number of vessels do you think, supposing this work was executed, would be saved in the course of a year?—I cannot say; but I know there would be a good many.

3419. I ask you the question, because there are a very few wrecks shown in Cardigan Bay?—Perhaps you mean the little bay of Cardigan; but in Cardigan Bay there have been a good many lost.

3420. Have those been large or small vessels?—I have seen a great many, both small and large, in the last seven years.

3421. Any vessels in connexion with the Liverpool trade?—I have seen a vessel lost at Newquay; that is in Cardigan Bay.

3422. Are you acquainted with many of the captains engaged in the Liverpool trade?—I have sailed from Liverpool myself.

3423. Are you aware that there is any anxiety on the part of the Liverpool trade, that a harbour should be constructed at Kemeess Head?—I cannot say that.

3424. Have you never heard the subject talked of?—I cannot say what is done in Liverpool, but I believe it would be of great service to them.

3425. But you have not heard it spoken of frequently?—No; I have heard it named from one to another, but I have not conversed with the great merchants upon any occasion on that subject; however, I believe that there is no nautical man that sails from Liverpool that would not wish for a harbour of refuge in Cardigan Bay. It is a place that every one keeps clear of, it is so dangerous.

3426. Mr. Ewart.] In speaking of Kemeess Head, and in giving the preference to Kemeess Head over every other place upon that part of the coast, does that apply to coasters?—Both to coasters and to foreign-going ships.

3427. But supposing it was desirable to construct a great harbour of refuge for national purposes, would you prefer Kemeess Head in Cardigan Bay to St. Tudwall's Roads, or any other place?—I would for general purposes.

3428. For a general purpose you prefer Kemeess Head to St. Tudwall's Roads?—Yes.

3429. Why?—Because when a harbour of refuge is required in Cardigan Bay, it is from the northerly and westerly gales; you can never get to St. Tudwall's with the wind from these quarters; it is upon the weather side.

3430. In

3430. In the case of an outward-bound vessel from Liverpool with a south-westerly gale, is it your opinion that she had better run for a harbour of refuge to a point like Kemeess Head, or to St. Tudwall's Roads?—With a gale of wind from the south-west she would not want a harbour of refuge in Cardigan Bay particularly, because she would have all the Channel and plenty of sea drift.

3431. But vessels outward-bound, caught off Holyhead in a south-westerly gale, would they run for Kemeess Head?—They do not want it, not being within Cardigan Bay.

3432. Mr. *Augustus Smith*.] The use of this harbour at Cardigan would be only for those vessels that were embayed in Cardigan Bay, taking from the point of St. David's Head to St. Tudwall's?—All those that are caught in gales of wind, sailing up and down channel abreast of Cardigan Bay.

3433. It would be only serviceable for vessels caught in the inner Cardigan Bay, between those two points?—It is for coasters, and all other ships.

3434. Mr. *Philips*.] Against what wind do you want to provide by the erection of that work?—Against a northerly and north-westerly gale.

3435. Mr. *Kendall*.] What is the most dangerous wind you have in Cardigan Bay?—Northerly and north-westerly.

3436. Does that wind very frequently occur?—Very frequently.

3437. With any wind that does occur there, would you run into St. Tudwall's Roads or not?—You might run into it with a northerly wind, if well to windward, but you could not fetch it if you were embayed in Cardigan Bay, it is impossible.

3438. In the most dangerous wind there, what point would be the best for the formation of a harbour of refuge?—Kemeess Head, I should say.

3439. Are you quite sure upon that point?—I am quite sure of it.

3440. From your experience?—Yes.

3441. *Chairman*.] Have you any further observations to make upon this subject?—I wish to say as to a harbour of refuge, I have been master of a vessel for 36 years, and I believe there is not such a dangerous bay on any coast as there is at Cardigan Bay; there is not even a creek to receive a fishing-boat at low water, and the upper portion of it is full of rocks, and the lower part as well; there is no place at all to relieve anything.

3442. Are there many fishing boats upon that coast?—There are a great many fishing boats, but they cannot go out, there is no place to shelter them, it is such a dangerous place; I have seen many of them driven upon the coast.

3443. Mr. *Ewart*.] Have you traded much from Liverpool to the westward?—Yes.

3444. What is your opinion as to the course that you would take going from Liverpool, would you go the north-about passage, or the south-about passage?—The south-about passage of course.

3445. You are strongly in favour of taking the south-about passage?—Yes.

3446. Supposing there was a good harbour of refuge at Portrush, would that make any change in your opinion in that respect?—It would be no harm to get one there, but I do not think it would be any particular good; I know the place very well.

3447. But would you still prefer the south-about passage?—By all means; I would never go the north-about passage if I could help it.

3448. Lord *John Hay*.] What is your objection to going out by the north passage?—It is a wild coast in every shape by the north passage, and nobody would go there if they could help it. Even Glasgow men will not go there if they can get the south channel.

3449. Mr. *Augustus Smith*.] You have been in the habit of going round in coasters; have you been well acquainted with the Bristol Channel?—Yes.

3450. As to the difficulties of that channel, from the north and west coast of Cornwall, what is your opinion as to which would be the best place for a harbour of refuge?—I would not like to say, exactly. Padstow is a nice place, but there is a driving wind going into it; so is Ilfracombe. Bude Bay is the most barren part of the coast.

3451. If you were bound round the Land's End, and were not able to get round the Land's End, where would be a good place?—I should think Bude Bay would be the best harbour; but I cannot well speak to that. I have been concerned in saving the lives of people in Cardigan Bay. I have seen, within these six or seven years, a ship called the "Agnes Lee" with a very valuable

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cargo, and with eleven people drowned there. I saved one, and I got a medal for it. I have seen another ship come there, called the "Thetis," which was lost. I was remunerated for saving some of the crew of that vessel too; but I did not take any of the money. I gave it to pay the life-boat people. I believe if there was a port of refuge down in Cardigan, it would be one of the greatest fisheries to be found. No boats can go out over the bar when there is a ground swell on. It is a tremendous bar.

Mr. John Harris, called in; and Examined.

Mr. John Harris.

3452. *Chairman.*] YOU are a Captain in the merchant service?—I have been a captain in the merchant service.

3453. Are you now resident at Newport?—I am.

3454. Have you been in the coasting trade?—I have.

3455. And in the foreign trade?—I have.

3456. Do you know all the coast pretty well?—I think I do.

3457. Have you been in the coasting trade on the coast of Wales?—I have.

3458. Do you know all the different ports and harbours upon that coast?—I think I do.

3459. Mr. *Philips.*] What are you now?—I am receiver of wrecks.

3460. How long have you held that situation?—From the 1st of January 1849.

3461. Receiver of wrecks under the Admiralty?—Under the Board of Trade.

3462. Are you the owner of any vessel?—I am not.

3463. Are you well acquainted with Cardigan Bay?—Yes, I have been over Cardigan Bar.

3464. But I mean Cardigan Bay?—Yes, I am acquainted with Cardigan Bay.

3465. What are the courses of the tide in Cardigan Bay?—The flood tide runs up to north-east, and east-north-east, and sweeps the bay, being the in-shore flood; and then there is another flood tide, the second part which takes a more channel course, and runs away to the north-east.

3466. There is a great in-draught of water there, is there not?—Yes.

3467. Can you say where the greatest number of wrecks occur in Cardigan Bay?—Since I have been in office they have occurred between Newport Bay and St. David's Head.

3468. Have you any list of wrecks?—I have got a list of wrecks that have happened since I have been in office; that have happened upon the coast within my district.

*Vide Appendix.* 3469. Is that a list of wrecks of which you had officially to take notice?—This is an official list. (*The same was delivered in.*)

3470. Where did those wrecks occur?—Between Newport and St. David's Head.

3471. Is there any place of safety into which you could take a vessel in a westerly gale between Holyhead and Milford Haven?—No, there is not a harbour you can take a vessel safely into now.

3472. None?—None.

3473. Are many ships in the habit of taking shelter in Fishguard Harbour?—A great many, when the wind is to the westward.

3474. In the case of large vessels which are bound for different parts of Cardigan Bay, supposing they have not sufficient water to go over the respective bars of their ports, where would they take shelter?—Invariably in Fishguard Bay, in Fishguard Roads.

3475. Would any of the vessels which are included in your list of wrecks have been saved if there had been a harbour of refuge to the north of Fishguard, in Cardigan Bay?—I should think not, because they were all wrecked and stranded with a north-east gale; a great number seek shelter in Fishguard Bay, with a westerly wind, and the wind chopping to north-north-east; they are thrown on the shore and stranded and lost, a great number of them.

3476. What is the danger to which vessels are now exposed in Fishguard Bay?—The only danger they are exposed to is the wind from the north-west to the north-east.

3477. What would guard them from that?—A breakwater or a harbour of refuge.

3478. Do

3478. Do you know what the depth of the water is between the Cow and Calf and Dinas Head?—The depth of water between the Cow and Calf and Dinas Head is from 10 to 12 and 15 fathoms.

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3479. If a breakwater were erected, where would that breakwater be?—Over the Cow and Calf; I hold a plan here of Fishguard Bay (*producing the same*); A breakwater would run in a line over these rocks, over the Cow and Calf.

3480. What extent of water would there be as to area between the breakwater and the shore?—I dare say there would be 600 acres, or a square mile.

3481. As much as that?—Yes.

3482. What depth of water would there be within the breakwater?—From five to ten fathoms.

3483. What is the bottom?—Blue clay, and some sand and loam.

3484. Is there good holding-ground there?—Excellent.

3485. Are there good materials upon the coast for the erection of a breakwater?—There is good granite upon the spot.

3486. What length of breakwater would be required in order to give this area?—Three-quarters of a mile, with a small arm to it again of another quarter of a mile.

3487. Have you ever heard the expense which that would involve?—I believe the expense, when Captain Evans formerly made these plans, was about 75,000*l*.

3488. Do you remember the gale in the year 1846?—I do.

3489. How many vessels in the roadstead of Fishguard were driven ashore at that time?—I believe there were 19.

3490. Would those vessels have been saved had there been the breakwater you allude to?—Every one of them.

3491. Was there much loss of life upon that occasion?—There was; several vessels were entirely lost, with all their crews.

3492. How many vessels were entirely lost?—Sixteen vessels were entirely lost.

3493. Fishguard was originally selected as the terminus of the South Wales Railway, was not it?—It was.

3494. Do you know why it was abandoned?—I cannot say; it was abandoned to take it to Milford in preference, perhaps.

3495. Are you acquainted with St. Tudwall's Roads?—I am.

3496. Which do you think would be the preferable place for a harbour of refuge in Cardigan Bay, St. Tudwall's Roads, or Fishguard?—I would prefer Fishguard; give the preference to Fishguard by all means.

3497. Are you acquainted with Newquay?—I am.

3498. Would that be a desirable place for a harbour of refuge?—There was a small harbour built at Newquay, but it is filled up with sand.

3499. How many places for a harbour of refuge in Cardigan Bay are there that could be named?—There are St. Tudwall's Roads, and there is Newquay, for what I know, but I cannot say; then Cardigan Bay and Newport Bay and Fishguard Bay, are all the eligible spots that I know.

3500. Which of the places you have mentioned do you consider to be the preferable?—I consider Fishguard to be the most preferable.

3501. Have you any property in the town of Fishguard?—Not any.

3502. Nor are captain or owner of any vessel?—Not any.

3503. Mr. Kendall.] You heard what was said just now about Kemess Head?—I did.

3504. Do you agree with what was said about Kemess Head; do you know it well?—As far as my knowledge goes I do not agree with it as being the best place.

3505. With respect to the loss of those vessels, you think if there had been a pier at Fishguard they would all have been saved; could they have run into Kemess Head if there had been a harbour of refuge there?—No, they could not.

3506. Mr. Baring.] Were those vessels embayed in Fishguard Bay that were lost?—Yes; they were all there seeking shelter from a westerly wind; they were all at anchor in the bay; there were 21 vessels at anchor at the time.

3507. If there had been a harbour of refuge at Kemess Head, instead of anchoring in Fishguard Bay, do you think they would have gone to Kemess Head?—They would have anchored in Fishguard Bay; they were bound to the westward; Fishguard Bay was as eligible as Kemess Head.

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3508. Would

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3508. Would they not rather have put into a harbour at Kemess Head?—Some might, and some might not.

3509. *Chairman.*] Have you any other observations to make upon the importance of this particular locality for a harbour of refuge?—All the observation I have to make to the Committee is that a harbour of refuge is very much needed upon that coast, because we have so many losses of ships; there are a great many more losses than I have stated in this paper, because I have only stated those that have come under my own observation officially.

3510. You think that would be the best place?—I think so.

3511. You have stated that you are well acquainted with all the other localities which have been mentioned for a harbour of refuge?—I am.

3512. And, upon the whole, you think Fishguard is better than any of the others of which you have spoken?—I do; it is not so contracted as the others; there is more sea-room to work in and out.

3513. Are there any other observations which you wish to make upon this subject?—No, not particularly.

Captain Christopher Claxton, R.N.; further Examined.

Captain  
C. Claxton, R.N.

3514. *Chairman.*] HAVE you made a plan for a harbour in Cardigan Bay?—I have.

3515. Is it the plan which you hold in your hand?—It is, and the report.

3516. What area would there be for shipping according to that plan if it was carried out?—About 30 acres, with six fathoms of water; about 75 acres, with five fathoms water; and about 30 acres with three fathoms water.

3517. What number of ships, upon an average of 200 to 300 tons, would that accommodate?—From 400 to 500.

3518. Have you made an estimate of the cost of that breakwater?—Yes, of this breakwater, with a good many more, and I find the cost about 100*l.* a foot-run upon the average of general depths, on which cost depends.

3519. What is the length?—One thousand yards; that is, at 300*l.* a-yard, 300,000*l.* for the 1,000 yards. (*The plan was handed in, with the report.*)

3520. Your estimate is, that the cost of that breakwater, to carry out the plan suggested upon that paper, would be 300,000*l.*?—Three hundred thousand pounds for 1,000 yards in six fathoms, more in deeper, less in shoaler water.

3521. Have you any correction to make in the evidence which you gave upon a former day?—Yes; I was asked how long the sand had been silting up in the harbour at Newquay, and I said I believed about five years, and as it is an important point as to how long it really has been, I wish to state, that I find it was built about 20 years ago, and 12 years ago it was all filled in, in a place of 12 feet of water, when the pier was built at low-water spring tides.

3522. Is there anything more?—I was asked if I had any plan for Holywell, which I thought was the best place upon the Cornish coast, for a large breakwater and harbour; I had not one then, but I have one here of that which is going to be made by a private company (*producing the same*). That is the plan that a private company are doing, and there is the proposed extension (*the plan was delivered in*), being Mr. Abernethy's, the civil engineer, who is to carry out the work.

*Lunæ, 19<sup>o</sup> die Aprilis, 1858.*

## MEMBERS PRESENT.

Mr. Baring.  
Mr. Clay.  
Mr. Dodson.  
Admiral Duncombe.  
Sir James Elphinstone.  
Mr. Joseph Ewart.  
Sir Robert Ferguson.  
Mr. J. H. Gurney.  
Mr. Hassard.

Lord John Hay.  
Mr. Kendall.  
Mr. Liddell.  
Mr. Macartney.  
Mr. Philips.  
Mr. Augustus Smith.  
Sir Frederick Smith.  
Mr. Wilson.  
Lord A. V. Tempest.

JAMES WILSON, Esq., IN THE CHAIR.

Captain *John Drew*, called in; and Examined.

3523. *Chairman.*] WHAT are you?—I am Haven Master of the port of Bristol.

3524. You are also superintendent of pilots in the Bristol Channel?—Yes.

3525. Are you well acquainted with the navigation of the Bristol Channel?—Yes, and have been so since 1812.

3526. Have you yourself navigated ships in the Channel?—Yes; I was 30 years out of the port of Bristol.

3527. Coasting or foreign?—Both coasting and foreign.

3528. What part of the coast are you best acquainted with?—From London to Bristol.

3529. Round the Land's End?—Round the Land's End.

3530. Separating in your mind the two parts of the Channel from Bristol to the mouth of the Bristol Channel, and then that part of the coast from the mouth of the Bristol Channel to the Land's End, what is your opinion with regard to the best situation, looking at the necessities of the navigation, for a harbour of refuge between Bristol and the mouth of the Bristol Channel?—I should say Lundy would be the place.

3531. You think Lundy would be the best place for it in the Bristol Channel?—Yes, and I will give my reason for saying so; it is easy to approach under all circumstances.

3532. You mean it is available in all states of the weather?—Yes.

3533. What are your worst winds in the Bristol Channel?—The westerly winds are the worst; the west-north-west in the Bristol Channel, and south winds; inside of the Hartland Point there is good shelter from south winds.

3534. Would Lundy be available for both of those winds in a storm?—Lundy would be available for any wind from south, and by west and north, and by east.

3535. Would Lundy be applicable for ships making for any or all of the ports of the Bristol Channel?—All ships in the Bristol Channel must pass north or south of Lundy.

3536. Are you at all aware of the expense of making Lundy into a harbour of refuge?—No; I have not the most remote idea.

3537. You have not paid any attention to that part of the subject?—No, I have not; there is plenty of material upon Lundy.

3538. What is the state of the present anchorage in the Bristol Channel?—First we come to the Mumbles Roadstead; secondly, Penarth; thirdly, Kingroad; there is no anchorage on the south side of the Channel.

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3539. Do

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*John Drew.*

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Captain  
John Drew.

19 April 1858.

3539. Do you consider the present anchorage very insufficient for the trade of the Channel?—Most assuredly.

3540. What are your general reasons for considering that Lundy Island offers the best place for a harbour of refuge?—It is an island; there is an open channel on the north side; an open channel on the south; a channel to the eastward to the open sea; a channel to the westward to the open sea; there is no lee shore in approaching it; and if any mishap were to occur, and a mistake was made in approaching the harbour of refuge, supposing it was in any other place, I should have the land to contend with.

3541. What sort of depth of water is there at Lundy?—From 5 to 13 fathoms, a mile from the island.

3542. Do you know anything about the port of Clovelly?—It is a mere pier for fishermen; I know the place, the situation.

3543. What is your opinion of Clovelly as compared with Lundy Island?—If I ran for Clovelly, supposing a harbour of refuge were to be placed there, I run into a bay, and may get embayed; whereas if I ran for Lundy, I should have an open sea, as I stated before, upon every side of it.

3544. So that you would be much more secure of proceeding upon your voyage when the storm lulled at Lundy Island?—With the wind at north-west, the ship would bear up for Clovelly; I should succeed, perhaps, in reaching the harbour of refuge. If the wind were to northern two points, say north-north-west, I am still embayed, and have no means, if there is any wind, of getting out of Clovelly Bay; but at Lundy, I could go to sea with the wind at north-north-west.

3545. Do you know Swansea?—Yes.

3546. Do you consider Lundy Island a better position than Swansea for a harbour of refuge?—Considerably.

3547. Will you state your reasons?—My reason is this; Swansea is 33 or 34 miles up the Channel to the eastward; I should have that distance to run, and I should have sands and shoals to contend with in approaching the Mumbles, which I should not have in going to Lundy.

3548. Supposing that the expense of making a harbour of refuge at Lundy, was such as to induce the Government to decline to make one there, what is the next best point you would suggest?—I should, with all its difficulties, though I should be embayed at Clovelly, prefer Clovelly to Swansea.

3549. Is Lundy much used at present as a harbour?—For the pilots and to stop tides; a great many vessels anchor there in the summer months, but not in the winter.

3550. You know nothing at all about the engineering facilities at Lundy?—No, I do not.

3551. Nor as to the material?—Yes, I know the material; the material is granite upon the island; plenty of it.

3552. An abundance of it?—An abundance of it.

3553. Is there any other observation you have to make with reference to the advantages offered by Lundy?—With regard to Lundy, if it had a protection from easterly winds, which are the winds above all others most dangerous, I could go there at all times; I think it is a situation above all other places to be preferred, even for the trade from Liverpool and from the northern part of Ireland.

3554. Admiral *Duncombe*.] Have you equal experience in the foreign voyages from the Bristol Channel as in the coasting voyages?—I was 30 years in the West India trade.

3555. In the case of vessels going out of any port in the Bristol Channel, say Bristol, Newport, or Cardiff, how would they shape their course in going foreign?—They would generally pass north or south of Lundy, depending upon the wind.

3556. Close to Lundy?—They would have nine miles on the south side and 27 miles on the north.

3557. Would they keep more to the south or to the north on the Welsh coast?—That would depend partly upon the wind, if they were bound into the Western Ocean.

3558. From your experience of the Bristol Channel, you think Lundy Island the most eligible place for a harbour of refuge?—Certainly, that is my opinion.

3559. As applying to the whole traffic of the Bristol Channel?—For the Bristol Channel throughout.

3560. As

Captain  
John Drew.

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3560. As you say you know nothing of the engineering points at Lundy, are you certain that it could be made an efficient harbour of refuge?—I believe it is possible to make a harbour of refuge from Rat Island up to Tibbet Point.

3561. The depth of water is not so great as to prevent it?—There are 13 fathoms to contend with.

3562. Is that the deepest?—It is at low water.

3563. And the material of the island, you say, would be sufficient for that purpose?—Quite enough.

3564. Lord *John Hay*.] Supposing vessels required protection in a north-westerly gale, and were in such a position that they could not fetch Lundy, but were to leeward of it, what part of the channel would they run to?—In a north-west wind they must be eastward of Lundy when they could not fetch Lundy, and then they must come back to Penarth Roads or Kingroad.

3565. Do ships at present take refuge at Swansea in time of bad weather?—The coasting trade from the ports of Newport and Cardiff, I expect, bound to Ireland and the northern part of the coast, would take shelter in the Mumbles Roadstead occasionally, and so they would in Tenby Bay.

3566. Do not you think it advisable to improve that shelter at Swansea?—It may be done; there is no objection to make; any improvement you please in the Mumbles Roadstead; but if we are to have but one harbour, then I should say Lundy would be the place.

3567. Mr. *Baring*.] I suppose you are well aware of the wrecks that have taken place lately in the Bristol Channel?—Yes.

3568. Can you state to the Committee any instances in which if there had been a harbour of refuge at Lundy, ships and lives would have been saved?—I do not know of any instance at present where lives have been lost in the Bristol Channel.

3569. A harbour of refuge is for the sake of saving ships and lives?—Certainly.

3570. Then I want to know the reasons upon which you ground the necessity of having a harbour of refuge at Lundy?—It is of advantage to all the trade of the Bristol Channel with strong westerly winds, that they should have shelter to enable them upon a change of wind either to proceed coastwise west of Cornwall or into the Western Ocean.

3571. But admitting that it would be of advantage to the trade, what I want to know is whether in your opinion there is a necessity, in consequence of the loss of ships from the want of a harbour of refuge, for making such a harbour in the Bristol Channel?—Yes; I feel that the trade in fact would be benefited in the first place by having a place of the kind, and in many instances perhaps it would be the saving of life and wreck.

3572. Do you remember any instances in which the loss of large ships would have been prevented by having a harbour of refuge there?—There was an American ship lost at Barnstaple Bay, I think, in the autumn; if there had been a harbour of refuge at Lundy the captain would have saved half the crew and the ship.

3573. Can you recollect any other instances of the kind?—Not immediately.

3574. Mr. *Hassard*.] You speak of erecting a breakwater upon Rat Island; is it upon that side of the island that a breakwater is proposed?—Upon the eastern side.

3575. Is that upon the north or the south side of Rat Island?—The south side.

3576. Is it proposed to have any work upon the northern part?—No.

3577. Is not that part of the roads more open?—No; the island is protected; as I stated before, from south and by west, and north and by east, it is sheltered, but with all the other winds of course it is told upon.

3578. Is not the roadstead open to any wind to the eastward of north?—To the eastward of Lundy Island, north-north-east.

3579. The present roadstead is at the east side of Lundy?—Yes.

3580. Is it open to the wind at all points to the eastward of north?—Yes.

3581. It is not proposed to erect any breakwater to shelter them from that wind, is it?—I have never heard any proposal as to a breakwater being placed there; but in an engineering point of view, I should say that it would be from where I have stated, Rat Island to Tibbet Point on the south-south-east.

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3582. That would be in 13 fathom water?—That would be in 13 fathom water.

3583. Is there not a large coal trade from Cardiff and the upper part of the Bristol Channel to Ireland, and to the Irish Channel in general?—There is a very extensive coasting trade there with coals.

3584. What course do those ships generally take?—On the north side of the island between Caldy and Lundy.

3585. If any of those vessels were caught in a south-westerly gale, would Lundy Island be available to them as a harbour of refuge?—No.

3586. Were would they run for?—Caldy or Tenby Roads.

3587. Suppose they were anywhere to the eastward of Caldy?—They would go to the Mumbles Roadstead, I suppose.

3588. Do you think any additional works necessary at the Mumbles Roadstead for their protection?—Of course any alteration, or any improvement that could be made at the Mumbles Roadstead would be an advantage for the trade of the place.

3589. Is there not a very large loss of shipping at the Mumbles Roadstead?—Yes; it is exposed to the south and south-east winds.

3590. Does not it appear to be the case that there is a greater loss of shipping there than in any other part of the Bristol Roadstead?—Yes.

3591. Would a harbour of refuge at Lundy Island have prevented any part of those losses?—Yes, if they had reached so far as Lundy Island.

3592. But, with respect to those that actually occurred?—They were lying at anchor in the roadstead.

3593. Are they, in fact, obliged sometimes to lie for a long time in that roadstead?—Yes, it is confined principally to the coasting trade.

3594. Is there not a large foreign trade in ore there?—Yes.

3595. Carried on in large ships?—Yes.

3596. Can those ships get in at neap tides to Swansea?—They cannot.

3597. If they miss the spring tide they are obliged to lie in the roadstead till the next tide?—Yes.

3598. Are those vessels occasionally lost or damaged?—I have heard of one, but she went on shore while under weigh.

3599. Have you ever heard of a ship while at anchor in that roadstead being damaged by the send of the sea?—No; but I should not be surprised at it, because of the shallow water.

3600. Mr. Ewart.] You propose to make two entrances, one from the north and one from the south?—Yes.

3601. What would be the width of the proposed harbour?—That has never been suggested, but I should suppose a mile from the main land.

3602. What would be the length?—Perhaps about a mile and a half from Rat Island to Tibbet Point.

3603. Mr. Augustus Smith.] The great object of a harbour of refuge at Lundy would be for outward-bound ships, according to your account?—It would apply to all vessels bound round the land, coasters as well.

3604. All vessels bound out of the Bristol Channel?—Yes; and to all vessels bound in, from the Western Ocean it would be very serviceable with strong easterly gales, such as we had last year, and when vessels were driven into the Western Ocean again.

3605. Do you suppose it would be possible to make a harbour of refuge at Lundy available in an easterly wind, particularly with small vessels in that depth of water?—I should think so, but an engineer would satisfy you on that point better than I can.

3606. Mr. Philips.] Would vessels from the harbours of Newport, Neath, and Port Talbot, bound to the Irish Channel, go near Lundy or the Mumbles?—With the prevailing wind, the westerly wind, they go near the Mumbles; but in beating down from there, they would approach Lundy as well as Caldy in working out on the north side of Lundy.

3607. Have you any idea of what number of vessels Lundy would accommodate, without incurring very great expense, in consequence of the great depth of water there, supposing a harbour were made?—I do not consider the water so very deep; it is from 5 to 13 fathoms.

3608. How many vessels would that accommodate?—I am not prepared to say.

3609. Do

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3609. Do more vessels resort to the north or to the south coast of the Bristol Channel?—The trade is on the north side; the coasting trade of Newport, Cardiff, and the other places.

3610. Have you any idea of what space there would be in the five fathom water for vessels at Lundy Island?—No great space, looking at the distance; the five fathom water is from the land.

3611. Sir *James Elphinstone*.] What would be the expense of a harbour there?—I have not any idea; I am not an engineer.

3612. Have you no means of stating to the Committee what the expense would be?—No.

3613. Is there any point between the Mumbles and Milford Haven where a harbour of refuge might be constructed?—Not so well as at Lundy; you would have to run away to leeward, and you would have the main land to contend with, instead of the island. But with a strong westerly wind there is some difficulty on that coast.

3614. How far would you go down?—The difficulties are all the way down on that coast.

3615. Taking the coast between the Mumbles and Milford Haven?—There are the Helwick Sands to contend with. The eastern extremity is a quarter of a mile from the main land, and the western extremity is three miles and a half from Worms Head, and they cannot go inside the Helwick Sands with a deep laden vessel with safety; it is a narrow channel.

3616. How near do they stand in between the Mumbles and Milford Haven?—After passing the Helwick, they get into Carmarthen Bay, and there they have all the difficulties in the world to contend with; it is full of shoals and sands.

3617. You consider Lundy Island as a salient point, in fact?—Above all places.

3618. You prefer a projecting point into the Channel, so that you may get a fair loose on either tack, to embaying yourself on either side?—Yes, most assuredly.

3619. Sir *Frederick Smith*.] Have you formed any idea of the extent of accommodation which Lundy Island would afford?—No.

3620. What extent of breakwater should you make?—I should fancy a mile would be sufficient.

3621. One breakwater only?—One breakwater only, with an entrance north and south.

3622. What is the holding ground?—Sand and blue clay.

3623. Mr. *Liddell*.] Did I correctly understand you to state in answer to a question put to you some little time ago that your memory did not serve you as to the particular locality where wrecks take place in the Bristol Channel?—I have known two or three wrecks; but I am not aware, generally speaking; it is only those where our pilots are on board which come to my knowledge particularly.

3624. You have navigated these seas for about 40 years, I think?—Yes.

3625. And the result of your 40 years' experience is that very few wrecks take place in the Bristol Channel?—I believe that a great many take place, but they do not come under my knowledge.

3626. Then you do not know the points from your own naval experience that are considered the most dangerous places?—I consider the north side the most dangerous, because there are more shoals.

3627. Do you mean in the neighbourhood of Swansea?—All the way down from Penarth Head to the Worm's Head.

3628. Do the greater proportion of the vessels engaged in the coasting trade from those four harbours of Gloucester, Swansea, Cardiff, and Bristol, ply from the northward or the southward?—The greater portion come away from the northward; from Cardiff and Newport, which are on the north side.

3629. Some are bound round the Land's End?—Yes, some are bound round the Land's End.

3630. If the wind is from the northward, they can find shelter in Milford Haven?—Yes, but that is 33 miles away from the Bristol Channel.

3631. I want to understand the necessity for a harbour of refuge; the main necessity is to the southward, I presume, for those vessels?—No, that will apply to the northward as well; namely, for vessels bound up St. George's Channel.

3632. Have they not Milford Haven to the north?—That is 33 miles away; they may be stopped between the two; there are very dangerous waters between Lundy and Milford Haven. To be embayed in a freshwater bay would be a very awkward thing.

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3633. If a large portion of those vessels are bound round the Land's End, what objection do you entertain to St. Ives' Bay as a harbour of refuge?—It is out of the way for the Bristol Channel trade; it is too far removed. I think the trade bound into the Western Ocean from Bristol, when it reaches as far westward as St. Ives, will keep the sea without a harbour. If an accident were to take place then St. Ives would be very well.

3634. The danger arises over that extreme range of coast extending from St. Ives Bay to the north point of the Bristol Channel?—That is Caldy Island.

3635. Mr. Gurney.] Is it within your knowledge whether ships at the present time practically take refuge at Milford Haven when caught in storms in the Bristol Channel?—Vessels bound over to the northern part of Ireland, and vessels bound up St. George's Channel, would take refuge in Milford Haven.

3636. But none other?—No; occasionally, perhaps, there may be some, but very few.

3637. Mr. Kendall.] Would not making a harbour of refuge at Lundy Island be a very expensive matter?—I have no idea of the expense.

3638. The waters are very deep there?—From 5 to 13 fathoms, but the material is in great abundance there; it is only a question of labour.

3639. What is the material, slate or granite, or what?—Granite.

3640. Sir Robert Ferguson.] Are there any particular facilities afforded at Lundy Island, for the employment of convict labour, to be furnished by the Government for the purpose?—It is convenient for the employment of convict labour above all others, because there is protection there; if they had convicts upon the island, they would be able to take care of them.

Mr. Robert Gething, called in; and Examined.

Mr. R. Gething.

3641. Chairman.] WHAT are you?—At present I am harbour-master of the port of Newport.

3642. Are you a pilot?—I am pilot commissioner.

3643. How long have you been acquainted with that part of the coast, the Bristol Channel?—About 40 years.

3644. But you have been harbour-master and pilot commissioner for about 11 years?—Yes.

3645. What do you consider the best part of the Bristol Channel for a harbour of refuge?—I have given it some consideration, and have arrived at the conclusion that Lundy would be the best; certainly the best in every respect.

3646. You have been in the room while the last witness was examined; have you no other reasons which you can state to the Committee beyond those which he has stated why you give the preference to Lundy Island?—Yes, one particular reason is this; I have a decided objection to a vessel approaching Swansea, in consequence of its great danger. I have a decided objection to making Swansea a harbour of refuge, because in every case that coast is invariably avoided, from the great dangers attending vessels approaching those sandbanks.

3647. You know nothing about the engineering question as to Lundy Island, I presume?—No, I do not.

3648. You know nothing about the expense of making a harbour there?—No, I do not.

3649. In the event of Lundy not being adopted, which would be the next place that you would recommend?—I should think Clovelly would be the next.

3650. You know the Mumbles?—Very well.

3651. I think you have already said that you would be adverse to any proposal for making a harbour of refuge there on account of the danger of Swansea?—Decidedly so.

3652. Have you any interest at all in either of those places?—None.

3653. Have you attended to what the last witness stated to the Committee?—Partially; I had not been in the room the whole time he was examined.

3654. Is there good holdingground at Lundy?—Yes; I believe it is perfectly good.

3655. Have you ever yourself cast anchor there?—Never; but I have known a great number of ships to lie there in gales.

3656. Will you state to the Committee what you consider the special advantages that Lundy offers for this purpose?—I consider that Lundy, being only three miles long, if a breakwater was constructed there, when the wind came from the north, they could pass away, and get to the Western Ocean by the south; and if the

the wind came from the south, they would pass away by the north of the Island, so that they would always have free ingress and egress to and from the island.

3657. So that they would not be wind-bound?—Never; let the wind come which way it would, they would always have the means of letting the ships pass away, which would not be the case at any other place.

3658. At Clovelly a vessel might be wind-bound and embayed?—Yes, even with a fair wind.

3659. Is there any other reason which you wish to state in favour of Lundy?—Only as to its central position. I have a return here of the tonnage of the ports of the Bristol Channel, taken from the Board of Trade, if the Committee wish to receive it.

3660. What is the nature of the return?—It gives the total number of vessels in the United Kingdom, and the total tonnage of the same, and the number of those vessels that come in and out of the Bristol Channel. Of the total number in the United Kingdom, which is 398,540, the number in and out of the Bristol Channel is 65,213, being one-sixth of the entire vessels that enter and depart from all the ports of the United Kingdom, and one-tenth of the tonnage of the whole.

3661. You wish to put in this Table, as showing the importance of the Bristol Channel?—Yes.

3662. But not as specially bearing upon Lundy Island?—No, as showing the absolute necessity of having a place of refuge in the channel.

3663. But having no special reference to Lundy?—No, not directly; but it would bear indirectly upon Lundy. (*The witness delivered in the same*).

*Vide Appendix.*

3664. What is the next place you would prefer to Lundy?—I think I stated, just now, Clovelly.

3665. Admiral *Duncombe*.] That return would be of the number of vessels that pass out of the Bristol Channel annually?—Yes, for one twelvemonth.

3666. The great majority of which, probably, would be small coasting vessels?—Coasting vessels and foreign vessels.

3667. But the majority of them would be small coasting vessels?—Yes, in tonnage.

3668. Does not the coasting trade, from the port you represent, as well as from Cardiff and those other ports, hug the northern shore very much in going out?—That depends entirely upon the wind. If the wind hangs at all from the west, or west-south-west, then vessels invariably beat down Channel upon the south coast, the coast of Devon. They avoid the Welsh coast as much as possible. After they get down as far as the Ness Point, they invariably beat down on the southern coast.

3669. Why is that?—It is perfectly bold; it is free from danger.

3670. There are more dangers, in fact, on the northern shore than on the southern shore?—It is quite encumbered with sands and rocks upon the northern shore, whereas there are none on the south.

3671. Do you think ships in the coasting trade would avail themselves of a harbour of refuge on Lundy Island, as well as ships in the foreign trade if there was one?—Yes; I do not see how a ship, unless the master was perfectly well acquainted with Swansea, even if there was a harbour of refuge there, would dare to go to Swansea in a dirty night.

3672. You think if there was a harbour of refuge at the Mumbles, that in a dirty night the master of a vessel would not like to run for it?—Not unless he was very well acquainted with the place.

3673. Would he hesitate to run for Lundy?—No; if a harbour was constructed there, as I have mentioned, a vessel could make the island at any time.

3674. There would be no danger in making for it at any time?—None whatever.

3675. Mr. *Baring*.] Have you considered the propriety of making a harbour of refuge at St. Ives?—There may be a necessity for it, but is entirely too far removed to answer our purpose.

3676. Supposing a vessel leaving the Bristol Channel was to get a good way down, and the wind was to come on strong from the north-west, would not St. Ives be a good place for a harbour of refuge?—It must be an extraordinary case; in a very severe gale if there was a harbour of refuge at Lundy and bad weather came on, he would return there; he would get back to Lundy: do you mean to make a harbour of refuge for coasters going down to the Land's End?

3677. I am not talking of coasters particularly?—In the case of vessels bound out of the Channel, if a gale of wind came on, at the commencement of the gale if

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there was a harbour of refuge at Lundy, they would return to it, there is no doubt; and there not being any, now causes a great deal of the loss that takes place upon the coast of Cornwall.

3678. But you think that the case of a vessel requiring a detention at St. Ives is very unlikely to occur?—Yes; in a south-west gale or south-south-west gale, or a westerly gale, a vessel would get into Milford if she was as far down as St. Ives.

3679. Looking at the protection that may also be required for vessels coming down the Irish Channel, do you think that Lundy Island or Saint Ives would be the best situation?—Lundy Island decidedly, because a vessel coming out of the north channel, going round the Land's End, if the captain met with a gale of wind approaching the Land's End, and found there was any difficulty at all, or any doubt about his clearing round the Land's End, he would bear up for Lundy immediately if there was a harbour there.

3680. There are very thick fogs in the Bristol Channel, are there not?—Occasionally, but not more so than in other places, I think.

3681. The currents are extremely rapid, are they not?—The tides are rapid.

3682. Do you think it would be very easy to make Lundy, with certainty, supposing a vessel was running for a harbour of refuge?—It is a very high and very bold island; there is no shallowing water more than half a mile off, only in one part.

3683. Are you acquainted with the opinion of the trade generally in the Bristol Channel as to where a harbour of refuge is most required?—I believe it is the general opinion with us that Lundy Island would be the most suitable place; that is the opinion amongst our pilots and every person.

3684. And that is the case both in the opinion of the coasting trade and also of the foreign trade?—Yes; it would be very available indeed for the coasting trade, so many of them passing down the south coast going round the Land's End, and for vessels going to the south of Ireland also.

3685. We have been told that there is a considerable trade between this country and South America which takes advantage of the port of Swansea; is that the case?—I do not know anything of that.

3686. You are not aware whether that is the case or not?—No, I am not.

3687. *Mr. Baring.*] You have given in a return of the amount of tonnage in the Bristol Channel?—Yes.

3688. Can you inform the Committee of the per-centage of loss that has taken place?—No, I cannot.

3689. Can you mention any recent cases of loss?—Yes, I can mention one.

3690. Can you mention any recent cases in which if there had been a harbour of refuge at Lundy, ships and lives would have been saved?—Yes; I can mention distinctly one which occurred in the year 1856; it was a ship called the "Warden," an American ship which loaded iron; she was going down Channel, and got as far as Lundy; I apprehend if there had been a harbour of refuge there the captain could have readily taken it, and the ship would have been saved, but she was ultimately driven into Barnstaple Bay, and was lost.

3691. Was that in a severe gale?—That was in a severe gale.

3692. Have there been recently any severe gales?—Yes; but the recent gales have been mostly from the south-west.

3693. From your own port can you mention any cases in which vessels would have been saved if there had been a harbour of refuge there?—No, I cannot.

3694. *Mr. Hassard.*] Many vessels do anchor in the roadstead at Lundy Island at present?—Yes.

3695. What wind is that roadstead exposed to at present?—The wind all round from the east, from about north and by east to south, I should say; at least to south, south-east or south, I dare say.

3696. With the wind from that direction, cannot an outward-bound vessel go on her voyage?—Yes.

3697. Then she does not want it, in fact?—Not outward-bound with those winds.

3698. It is only to those winds that the present roadstead is exposed?—Only to those winds; it is sheltered from westerly winds.

3699. So that in fact there is shelter there at present whenever a vessel wants it?—Whilst the wind is from the westward; but as soon as the wind comes from the north, and north and by east, it is immediately exposed.

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3700. She can go on her voyage then?—That depends upon the state of the weather; with a very heavy northerly gale a ship would not like to break from Lundy.

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3701. You stated, I think, that Swansea was beset with difficulties?—Yes.

3702. Is it not the case that there is a space of nearly six miles clear of the sand off Swansea?—In the first place, as you approach Swansea you have to encounter a bank of sand called Mixom Sand, which lies immediately off the Mumbles Head; with a gale of wind it requires your utmost attention at the present moment to haul your ship to, with a gale of wind from the westward, with a strong flood tide, to get into the roads even now.

3703. Is it not clear from the mid-channel into the anchorage of Swansea?—After you get within the Scarweather Sand, and above the Mumbles Head, there is an open space.

3704. Would not that bank break the water and the sea with a westerly wind?—Very little, because it is always covered.

3705. Covered at low water?—Covered at low water.

3706. Do not many vessels at present run back to Penarth Roads?—A great many.

3707. Could not many of those vessels run into Swansea?—That depends upon what sort of vessels they are; no large vessel would ever attempt to go to Swansea.

3708. I am not speaking of it as it exists, but if there were a harbour of refuge made there?—No. No large ship would ever attempt it, according to the plan I have seen of it.

3709. Why?—I have the plan here, and I will show it to the Committee if they please (*exhibiting the same*). It appears that the breakwater runs down out immediately from the Mumbles Head, a distance to the eastward, and then there is a little opening for the ships to enter.

3710. Suppose a breakwater was constructed there, would not that protect them?—The place is so shallow that when a vessel would pass to the eastward of that, if she were there early upon the flood tide, there is no water in the bay for a ship to stand into the bay to get out of the strength of the tide.

3711. What water would there be in this proposed harbour of refuge at Swansea?—I suppose a quarter of a mile inside, at low water, there would not be above seven or eight feet.

3712. In the chart there it is laid down as five fathoms?—That is close outside of it; but if a ship wanted to get into the harbour, she must have room to work her way down.

3713. Are not most of the vessels which at present run back to Penarth Roads vessels of light draught?—They are mostly large vessels that run back to Penarth.

3714. Are they coasters?—A great many coasters.

3715. Are the coasters large?—No; not drawing a good deal of water, perhaps 13 or 14 feet of water.

3716. Do not you think that most of those vessels that run back to Penarth Roads would run to the Mumbles also?—They do sometimes.

3717. Are they not better advanced upon their voyage going to the westward by being at the Mumbles than at Penarth?—Yes; but they go now upon the shore; however, persons very well acquainted with it might go there.

3718. Supposing a harbour of refuge made there, if you were at the Mumbles would you not be better advanced upon your voyage than going to Penarth?—That would depend upon the state of the wind.

3719. Under every circumstance?—Not under every circumstance; a vessel would get from Penarth Roads with a south to south-south-east wind, when she would not get from the Mumbles.

3720. How does the gale from the south-west, that forces the vessel backward, generally shift; does not it generally shift round to the north?—Generally south-west gales end in the north-west.

3721. Would not a vessel under those circumstances be more advanced on her voyage being under the Mumbles than at Penarth?—If she wanted to leave with a south-east wind.

3722. You stated that the coasting trade for Ireland generally kept the south coast channel?—With a westerly wind if they have to beat down.

3723. Do they come out through the south channel to the southward of Lundy?

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—A vessel bound to the north channel, if the wind is fair, of course always keeps down along the Welsh coast.

3724. You say that a vessel with a westerly wind generally beats down along the south coast channel?—Yes.

3725. Do they continue along the south coast so as to go out by the channel south or north of Lundy Island, being bound for an Irish port?—When they get down the length of Ilfracombe, a vessel bound to the north channel, even with a westerly wind, would make over towards Caldy.

3726. A vessel bound to Cork?—A vessel bound towards Cork would always make down towards the north, so as to get Milford under her lee.

3727. If a vessel were caught by a south-westerly gale, could she make any use of Clovelly?—She would be to leeward of it with a south-west gale if she got far over towards the Welsh coast, therefore, of course, she would not run for it.

3728. Mr. Ewart.] Is not the east side of Lundy Island very precipitous?—It is.

3729. What is the least depth of water you have there at low-water spring tides?—Do you mean the nearest to the island.

3730. Tolerably close to the island?—Probably five fathoms.

3731. Is not that a great depth for coasters to anchor in?—No.

3732. Not at low water?—No.

3733. It would be a great depth at high water there?—The tide rises about 25 feet there.

3734. You do not consider that very deep water?—No, it is shallow rather.

3735. Mr. Augustus Smith.] Is there much space of the depth you speak of, namely, of only five fathoms?—No; it does not run far off.

3736. To what extent would that be for coasters?—The five or six fathoms would not extend, I should suppose, more than perhaps half-a-quarter of a mile off.

3737. What depth of water do you get into then?—You deepen your water as you recede from the island, from five to about 15 or 16 fathoms.

3738. The larger part of this harbour would be from 13 to 15 fathoms water, would it not?—Yes.

3739. Would not that be too deep for the average coasters that go along the southern coast of Wales?—No; our large coasting vessels frequently anchor in the Channel in 25 fathoms water.

3740. What is the average size of the vessels that generally go from Newport coastwise?—Vessels which would carry about 200 tons.

3741. Do you think they would prefer a harbour of refuge to be made at the Mumbles, where they would have shallower water, or a harbour of refuge at Lundy, where there is very deep water?—I should think they would prefer Lundy decidedly; it is such an advantage to them with the wind from the southward.

3742. With a harbour of refuge at Lundy, suppose a vessel coming down from the Irish Sea, bound round the Land's End, how much out of her course would it take her to go to Lundy Island?—It would be considerably out of her course; she would not go there unless driven by stress of weather.

3743. What distance would it take her out of her course?—From 25 to 30 miles.

3744. Her course would be from the Smalls to the Land's End?—If she came to the westward of the Smalls; but if she came by way of Milford, Milford is only 35 miles from Lundy.

3745. She might come down the South Bishop, bound round the Land's End by Longships; I ask what distance it would take her out of her course, if she were to run to Lundy for a harbour of refuge?—I should think about 25 miles in a direct line.

3746. If you look at that chart perhaps you will be able to tell what the distance would be (*handing the same to the witness*)?—It might be 30 miles; perhaps more. That would be in the direct line; about 25 or 30 miles.

3747. Supposing she got down towards the Land's End, and were not able to get round the Land's End, what distance would it take her out of her course, if she went to Lundy?—The distance from Cape Cornwall to Lundy is about 75 miles.

3748. Mr. Philips.] Do not you know that practically a great many vessels do take shelter in the Mumbles at present?—They do.

3749. Do

3749. Do you hear of many accidents occurring to vessels in making the Mumbles?—No; because the vessels that frequent the Mumbles now, are a small class of vessels, and the masters are very well acquainted with the place.

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3750. Do not many foreign going vessels go to the Mumbles?—Not unless they come from Swansea.

3751. Do not the greater part of the accidents that occur there occur in consequence of the wind shifting, when they have taken shelter?—Yes; and they run the vessels in upon the ground.

3752. That would be prevented by a breakwater, would it not?—It would, in some measure.

3753. Have you any idea of what number of vessels Lundy would accommodate, supposing this breakwater were made?—I think if a breakwater were made of a mile in length, you could have it a mile off the island; if you put it into the 15 fathoms of water, I should think it would accommodate about 200 sail of vessels at least.

3754. Sir *Frederick Smith*.] Have you any idea of the cost of making the breakwater, or making this harbour complete?—No, none whatever; I have heard it said from 300,000 *l.* to 500,000 *l.*

3755. *Chairman*.] You cannot speak of that of your own knowledge?—No.

3756. Mr. *Liddell*.] From your long naval experience, can you state distinctly to the Committee the locality that you consider the most dangerous for coasting vessels engaged in navigating the Bristol Channel?—There are no dangers in the Bristol Channel, except those on the north side, namely, the Elwick, the Mixom, the Scarweather, and the North Sands; and further up there is the Reculver, but we seldom get a vessel lost there.

3757. For vessels navigating to the north, does Milford Haven afford very efficient shelter now?—Very excellent; it is the finest harbour in the world.

3758. Consequently the danger arises to those vessels engaged in navigating south from the great ports of Gloucester, Cardiff, Bristol, and Swansea?—The majority of the ships leaving the Bristol Channel pass to the south by Lundy; the foreign and coasting vessels, the very large majority of them.

3759. Is great difficulty experienced by vessels rounding the Land's End?—No, not generally, I think not.

3760. Is not a south-easterly gale a very bad gale to encounter round the Land's End?—Immediately off the Longships it is, but in no other place; it is fine smooth water all the way down.

3761. In your opinion as a seaman, do you think that a harbour of refuge at Saint Ives Bay would be of great value to vessels leaving the Bristol Channel?—No, I do not apprehend that it would be at all.

3762. You do not think it would?—No; I think if the vessel had passed to the westward of Lundy, and found a gale coming on, if there was a harbour of refuge at Lundy she would run back to Lundy. I think if a vessel found a gale of wind commencing from the westward, and had a harbour of refuge to go to at Lundy, she would return there, and many casualties would be prevented.

3763. You are of course aware that vessels leaving their own ports do not leave unless they see reason for believing that they will reach at any rate a certain point, otherwise they would not leave their harbour; under those circumstances, would not vessels leaving all those four ports in a general way get beyond Lundy Island and Hartland Point before they were caught?—There are many thousands of instances where they only get down in the neighbourhood of Hartland Point, and find just there a change of wind.

3764. They constantly experience a change of wind at Hartland Point?—Many hundreds of vessels that leave the Bristol Channel find the wind more westerly when they get to that point.

3765. Then you decidedly refer to Hartland Point as the place where the difficulty is generally experienced?—Yes; we very frequently find that vessels having left our port experience a change of wind there, leaving with a southerly, or easterly, or south-east wind.

3766. Mr. *Gurney*.] I think I understood you to say in answer to a former question, that the general opinion of those interested in the trade of Newport and Cardiff was in favour of having a harbour of refuge at Lundy rather than at the Mumbles?—Decidedly.

3767. Do you give that answer in consequence of your general knowledge of

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the opinion of those parties, or from any special public expression of that opinion ?—I give that in a great measure from my own experience.

3768. Not from any particular expression of opinion ?—No ; I give it distinctly as my own opinion, together with that of others.

3769. Sir *Robert Ferguson*.] I believe you have already stated the number of vessels employed in the Bristol Channel ; can you state what proportion the trade of the Bristol Channel bears to the whole trade of the United Kingdom ?—I believe one-tenth of the whole trade of the United Kingdom. There are one-sixth of the whole number of vessels.

3770. *Chairman*.] Are there any other grounds upon which you would wish to state your opinion in favour of Lundy Island ?—No ; only that we perceive the absolute necessity of having a harbour of refuge for our ships ; great numbers of our vessels are constantly detained up in the eastern part of our Channel for the want of a place to get down to ; it very frequently happens that they get down the length of Lundy, and there is no place for them ; many of them would not think of going near Swansea ; they are obliged to come up the Channel again, and anchor about Penarth Roads, and all those places.

*James Walker, Esq., C.E., called in ; and further Examined.*

*J. Walker, Esq., C.E.*

3771. Mr. *Dodson*.] WERE you a member of the Commissions of 1839 and 1844, on the subject of harbours of refuge ?—I was.

3772. Did not both those Commissions recommend the construction of a harbour of refuge in the neighbourhood of Beachy Head ?—They did.

3773. Do you still consider that a harbour midway in the narrow part of the Channel as important in a national point of view as a refuge, both for vessels from stress of weather, and as a rendezvous in the event of a war ?—I do.

3774. Was not it the view of the Commission of 1844, that the construction of three harbours of refuge, namely, at Dover, at Seaford, and at Portland, was necessary to complete the harbours upon that coast ?—Yes, that is stated in the reports of both Commissions ; perhaps I may take the liberty to name a circumstance which is not reported, that an individual who paid great attention to the subject of national defences, the Duke of Wellington, said in his conversations with me that he considered Seaford Bay as more important than Dover.

3775. *Chairman*.] I think that Commission was for the double purpose of considering the best position for harbours of refuge and for purposes of defence, was not it ?—There was nothing, I think, of defence said upon the subject, for reasons which I dare say the Committee will appreciate.

3776. But that was the great object of the Commission ?—That was my impression, and is now, perhaps I should say, harbours of observation. I believe his Grace, in saying what he said to me, may have had reference to public defence as well as to the accommodation of ships in distress.

3777. Your attention was not given upon that Commission so much to the saving of lives and property in connection with the commercial traffic of the country, as it was with reference to the public defences of our coast ?—I think the evidence was more to the former than the latter ; but at the same time I must say my impression always was, that public defence was also an object of the Commission.

3778. I did not ask you about the evidence ; I asked you about your attention being directed ?—It was to the evidence that my attention was directed.

3779. Mr. *Dodson*.] Have you any statistics showing the loss of life upon the English coast between Portsmouth and Dover, as compared with the loss of life upon any other part of the coast ?—I have a memorandum of the statistics which the Honourable Member refers to ; but before reading it, I ought to say that it is not at all from my own information, but it has been given to me by the Honourable Member for Lewes, Mr. Brand.

3780. What is it taken from ?—I do not know.

3781. Is it not stated ?—No.

3782. *Chairman*.] But you know nothing of the matter yourself ?—I do not.

3783. Mr. *Dobson*.] Did not the Honourable Member who gave it to you, state to you that those statistics were taken from the Admiralty and Board of Trade registers ?—Yes ; I remember now that he did.

3784. Will

3784. Will you state them to the Committee?—The loss of life between Flamborough Head and St. Alban's Head, which is 140 miles, is as follows: In 1852, 109 lives; in 1853, 29 lives; in 1854, 67 lives; in 1855, 22 lives; in 1856, 33 lives; making 260. Whereas the loss of life between Portsmouth and Dover, which is 110 miles, were, in 1852, 53 lives; in 1853, 59 lives; in 1854, 1 life; in 1855, 20 lives; and in 1856, 85 lives; making together, 218.

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3785. Should you still, as a member of the Commission of 1844, recommend the undertaking of a harbour at or near Seaford, as soon as Dover and Portland are sufficiently advanced?—I cannot help saying that the report from the distinguished individuals upon that Commission, which was made in 1844, gives not only their opinion at the time, but mine; and therefore I think that it would follow as a matter of course, that my recommendation would be for a harbour at Seaford as soon as Dover is completed; but that may be a long time.

3786. What natural facilities are there for the construction of a harbour of refuge at or near Seaford as to anchorage, and as to materials for the construction of a breakwater?—The anchorage is reported by the Admiralty surveyor to be very good; the principal material, which is close at hand, would be the chalk rock, which is a hard and durable chalk.

3787. Is there not also sandstone in the neighbourhood of Newhaven?—There is, but I do not think it exists in such great quantities as would go far towards making a harbour of refuge there.

3788. Was not the proximity of the tidal harbour of Newhaven an important consideration with the Commission in recommending Seaford?—I considered it to be so, in fact it was stated to be so at the time; I think we took considerable evidence as to the capability of Newhaven.

3789. Are you well acquainted with the harbour of Newhaven?—Yes.

3790. Within your experience has that harbour been considerably improved?—It has very much.

3791. Has the bar at the mouth of it been removed?—It has.

3792. Is that harbour capable of considerable improvement?—Yes.

3793. What depth of water is there at low-water spring tides?—The depth of water now at low-water spring tides is two feet, and my opinion given to the late First Lord of the Admiralty was, that by an expenditure of money it could be increased to eight feet; and so I think now.

3794. At what cost do you estimate that that improvement might be effected?—The estimate which I gave to Sir Charles Wood was 70,000 *l.* That included the renewal, in some measure, of the present piers, of which part are not in a good state, and by adding so much as six feet to the depth of water, would require the underpinning and strengthening of those which are in a good state.

3795. Have the Board of Admiralty had it in contemplation to execute the works at Newhaven Harbour?—Whether they have contemplated the works I cannot say; that information would come more correctly from the Honourable Members by the Chairman's side (Admiral Doncombe or Mr. Baring); but the Admiralty, or rather Sir Charles Wood, directed me to go down and survey the harbour, and make a report, which I delivered in to him. A printed paper has been given to me which contains a letter from Sir Charles Wood, as to my report.

3796. *Chairman.*] What paper is that?—It is a paper containing my report upon Newhaven Harbour, at the request of Sir Charles Wood, which has been printed, and Sir Charles Wood's reply to Lord Chichester has been added to it.

3797. Is that a public document?—I do not know.

3798. To whom is the letter addressed?—To the Earl of Chichester, who was Chairman of the Commissioners.

3799. The Commissioners of the Harbour?—Yes.

3800. *Mr. Dodson.*] Will you state the substance of it?—I had better read the letter; it is very short: "Admiralty, 22d May 1857. My Lord; I had the honour, on the 13th of November last, of receiving your Lordship, together with a deputation from the trustees of the Newhaven Harbour. I have consulted Mr. Walker on the reports and documents which you left with me, and find that the Board of Admiralty cannot furnish a steam dredge, as we are obliged to hire one for our own purposes when required. I have also consulted Mr. Walker with the view of ascertaining what measures it would be necessary to take in order to

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ensure a depth of water of not less than eight feet over the bar at low-water spring tides. I have the honour to enclose herewith a copy of his report. I concur in the general views contained in it, and hope that the operations which the trustees are carrying on may be so executed as to further this object, which is important alike for public and private interests. I have the honour to be your Lordship's obedient servant, Charles Wood."

3801. Is there any harbour at present between Portsmouth and Dover, capable of accommodating vessels drawing eight feet of water at all times?—I think not.

3802. If gun-boats were stationed at Newhaven, would it not answer a double purpose, both for national defence and for the protection of the revenue?—I think so.

3803. Are there at Newhaven any natural capabilities for the formation of docks and basins?—There are; many years ago I made a plan upon a large scale for improving Newhaven Harbour, and in that plan I designed docks and basins; a copy of that plan is now in my hand. There is also (which was particularly referred to by Sir Charles Wood) a place called "Sleeper's Hole," which has always been looked at as a fit place for a dock and basin; there is a large excavation there already.

3804. Do you consider that such works could be constructed there at a very moderate expense?—A tidal basin could be made at a moderate expense; a dock with gates would be more expensive. The 70,000 *l.* does not include a dock or basin.

3805. *Chairman.*] Would those docks and basins be for the purpose of harbours of refuge, or for the purpose of the local trade of the coast?—The basins might be for refuge, but the docks would be for the trade or ships to lie up.

3806. Apart altogether from any consideration of national defences, and apart altogether from the trade of the locality, have you any strong grounds for recommending that a harbour for the sole purpose of vessels taking refuge in bad weather should be constructed at that part of the coast?—I have already said that the Commission to which I have referred recommended that strongly.

3807. You know that Captain Washington was a member of that Commission?—He was a member of one, not of the other; I was a member of both.

3808. Was he a member of the Commission which recommended Seaford as a place for a harbour?—Both Commissions recommended it.

3809. Are you aware that Captain Washington has been examined before this Committee?—I am not aware of that; but I know that at that time Captain Washington signed the report, recommending a harbour at Seaford.

3810. You are not aware that he has made a distinction as to that recommendation, explaining that in joining in that recommendation, he had in view defences, and not refuge?—I was not aware that he had said so; but my own opinion is, that a harbour constructed there would be not only useful for defence, but for refuge.

3811. *Mr. Macartney.*] In connexion with that report of yours you state, that for 70,000 *l.* a depth of eight feet at low-water spring tides would be obtained over the harbour, and the bar be removed?—Yes; but there is no bar now.

3812. What amount of entrance would be got, by an expense of 70,000 *l.*, for vessels coming in for anchorage?—The refuge would be confined to vessels getting inside the piers into the river; I do not contemplate, in anything I have estimated, a refuge outside of the piers, although this also may be obtained at a cost.

3813. Then what amount of large vessels coming in, could get refuge there in a heavy gale of wind, if deepened to the extent of eight feet?—The Honourable Member will see that eight feet over the bar would be 26 feet at high water. I proposed deepening and widening the river inside the piers, up to the mill stream, and there might be (as in the case of another harbour, Yarmouth, on which I have been examined) vessels moored alongside for the whole length of it, which is half a mile.

3814. Then I am to understand that there is no large space of acreage to make an anchorage inside the bar, but merely in the river?—Merely in the river (which may be much widened), unless Sleeper's Hole were formed into a basin. My own opinion is that a harbour at Newhaven, having eight feet at low water, and 26 feet at high water, by carrying out the piers further than they are, and groins or jetties, so as to prevent the full action of the sea upon them, would be a most valuable harbour to the coasting trade, and to the trade between France and

England.

England. It could not be called a great public harbour of refuge, but it would be a very useful harbour, and at times afford shelter. *J. Walker, Esq., C.R.*

3815. *Chairman.*] When you speak of trade, do you mean the trade of the locality?—No; I mean also ships at sea in distress.

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3816. Going up the Channel?—Up the Channel, that is to say at high water; at low water vessels of considerable draught could not enter.

3817. *Admiral Duncombe.*] Then I understand from your evidence, that by the improvement capable of being made by an expenditure of 70,000 *l.*, you would only acquire eight feet of water over the bar?—Yes.

3818. It still would be a bar harbour?—No; there would be no bar, it would be a general increase down to deep water.

3819. The whole harbour, as well as the bar, would be eight feet?—The river may be deepened to a greater depth inside. We have removed the bar entirely by the works we have already done.

3820. Then, by the expenditure of 70,000 *l.*, you would form a harbour with eight feet water in it?—Eight feet at the entrance at low water.

3821. Consequently, you would, I suppose, agree with me in thinking that that harbour would not be eligible as a harbour of refuge in a national point of view?—I would.

3822. Since the Report of that Commission, has your opinion at all changed as to the necessity of a harbour between Spithead and the Downs, or since the commencement of the great harbour which is now in formation at Dover, under your superintendence?—My attention has not been called to the subject at all since.

3823. My object in asking that question is to know whether your opinion has undergone any change during the interval, because we have had it in evidence before this Committee, by a Trinity-house pilot of very great experience in the Channel, that he considers there is no occasion for a harbour of refuge between Spit-head and the Downs; have you given any consideration to that?—No, I have not; it is possible that pilots may, like others, be a little prejudiced in that matter.

3824. *Mr. Baring.*] You mean by that, I presume, that pilots might probably think that the service might not require a harbour as a matter of necessity there?—Yes, partly so.

3825. *Mr. Gurney.*] Is the chalk to which you allude altogether an adequate material for a work of that degree of importance?—It is an adequate material for the core, but I should prefer, if I could find it, a better material for the surface. I may add, at the same time, that the jetty or groin that has been carried out at Newhaven is faced with this chalk; it has been done now several years, and it does not show a symptom of decay; it has got sea-weed over it, and when that is once over it and remains, it is comparatively safe from decay.

3826. In the estimate of 70,000 *l.*, which you have referred to, and which had reference to this particular work, what description of facing do you contemplate?—I contemplate the main body of it (the core) being of chalk, and the surface being, as far as we can get it, formed of a stratum of stone, which is very near to the harbour, but which I referred to as not being in sufficient quantity for the construction of a harbour of refuge, although there may be sufficient for facing the groin to which I have referred. It is not a very hard stone.

3827. *Mr. Augustus Smith.*] You read just now a statement of the loss of life which had taken place on the north-east coast, and on the southern coast in a certain number of years; from how many wrecks did this loss of life occur?—I cannot say.

3828. Of those that occurred upon the south coast, were they not in two or three instances emigrant ships, where large numbers of lives happened to be lost?—I think that is not at all improbable, but I do not know the fact.

3829. With reference to this harbour of refuge at Seaford being considered also as a harbour of defence, would it not require large fortifications to protect it?—I presume it would.

3830. If not so protected, would not such harbour give great facility to any foreign fleets for the landing of troops?—No, certainly not; it is the worst place in all England for that purpose; because Beachy Head is celebrated for its height, that there is no possibility of landing under or very near it. Any landing

*J. Walker, Esq., C.B.* must be the same, or nearly the same, as was adopted by Louis Phillipe, viz., at or near Newhaven Harbour.

19 April 1858. 3831. But if you formed this harbour of refuge with a large breakwater outside, would not that afford facility for the landing of forces?—I do not see that it would, having the cliffs behind it.

3832. Lord *John Hay*.] To continue the question which the Honourable Member recently put to you, do you conceive that the statement you gave in with regard to the comparative loss of life upon those different parts of the coast, affords proper data upon which to arrive at a conclusion as to the requirements with respect to those two parts of the coast?—No; by itself it would not.

3833. Without some accompanying statement of the comparative number of wrecks upon each part of the coast, a mere statement of loss of life would not afford safe data to go upon with regard to the requirements upon the coast?—No; it would only be one element in the consideration.

3834. Can you state to the Committee what was the sum total of the expense of the harbour which the commission of 1844 recommended to be undertaken?—I think the sum was 1,250,000 *l*.

3835. With regard to your estimate for this proposed work at Newhaven, was not it 150,000 *l*?—No; the estimate to which the Honourable Member refers, if it is an estimate at all of mine, must be an estimate of 1846, which includes the docks and basins to which I have alluded.

3836. The work is put down by you at 150,000 *l*.?—That must be for the plan which I hold in my hand, but not the smaller plan lately reported to Sir Charles Wood; the detail of the estimate of 70,000 *l*. is in my hand; I can give it in if you please (*delivering in the same*.)

*Vide Appendix.*

3837. You have some knowledge of the north-east coast, I believe?—Yes; I am employed now upon a very important harbour there, in the entrance to the River Tyne.

3838. Looking at the loss of life and the wrecks marked upon the wreck chart, and also looking at the money spent upon the other portions of the coast of England, do you not think the north-east coast has a priority of claim in any outlay of public money for the construction of harbours for the prevention of loss of life and property by shipwreck?—That is my impression, knowing as I do the immense trade there is upon the north-east coast, but I have no doubt the Committee have evidence upon that part of the subject from individuals who have paid more attention to that matter than I have.

3839. Mr. *Ewart*.] I think you are well acquainted with the Isle of Man?—Yes.

3840. Have you surveyed the harbours of the island?—I have.

3841. Do you consider that the Isle of Man is a good situation for a harbour of refuge?—I do. I think there are two situations very suitable for harbours of refuge in the Isle of Man.

3842. What situations are those?—Ramsey is one, and Port Erin is the other. My attention, as the honourable Member perhaps knows, was not directed when I was there so much to harbours of refuge, in the national sense, as to harbours for commerce, and the fishing trade.

3843. But the question I wish to put to you is as to a harbour of refuge for large ships, taking also into consideration the advantages it would afford to the herring fishery of the island; do you think that good harbours of refuge might be made in the Isle of Man?—I do think so; I have no doubt of it.

3844. Which is the best situation for a harbour of refuge there?—The best situation, taking "best" in an absolute sense, independent of cost, would be Ramsey; and the best, as regards economy of money, combined with accommodation, would be Port Erin.

3845. Might Port Erin be made a harbour of refuge for large ships at a moderate expense?—Yes, for a limited number.

3846. For how many?—I cannot say off hand.

3847. What would be about the area?—Forty acres. I have said in my report upon the Isle of Man harbours, "Since the last date," that is in 1846, "the trade of the island and the harbours, and that connected therewith, has much increased, the latter arising chiefly from the arrangement that came into operation in 1844, by which the harbours are open to windbound or other vessels free of dues or charges; while the tonnage of windbound and cargo vessels which entered the harbours in 1844 was 90,000, it had increased in 1854

to



to 218,000 (exclusive of fishing craft), a proof of the demand for shelter, and of the utility of harbours of refuge, if made. Several positions present themselves for such, as the bays of Ramsey and Douglas on the east coast, and Peel and Port Erin on the west; but I have not data to justify me in committing myself as to their relative advantages, further than by saying that if there were to be but one harbour of refuge, and if I were called on for an opinion now, irrespective of expense, it would be in favour of Ramsey. If, however, expense were a controlling element, I would name Port Erin, where, on account of its comparatively great depth inward, and small width between the heads, a secure harbour, having 40 acres, with from three to five fathoms depth at low water, might be made at a cost very moderate, compared with most works of equal extent." Port Erin is remarkably suitable. If the honourable Chairman will allow me, I will refer him to the plan which is here, Port Erin (*exhibiting the same*).

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3848. Mr. Liddell.] Will you tell the Committee how long that Commission of which you were a member in 1844, were engaged in prosecuting their labours and examining the coast?—A good many weeks, perhaps months; they gave great attention to the subject; and when I state that the Chairman was the late Sir Byan Martin, you may conclude, that the subject being committed to him by the Admiralty, he would not make a report without a very close examination of all the matters connected with the subject.

3849. But you cannot state exactly how long it occupied?—I cannot now, but I can inform the Committee to-morrow, because I have the report. They had also the previous report of a Commission, of which Admiral Sir James Gordon was the Chairman, to refer to.

3850. Mr. Baring.] Where does the money come from to make those harbours in the Isle of Man, or where is the money to come from?—From the Treasury; but the honourable Chairman knows as to that very much better than I do; it is under an arrangement with regard to some question of duties, of which a proportion was to be given to the Isle of Man for improving their harbours.

3851. What are they doing now?—I made a report on all the harbours, and it was approved by the Isle of Man Commissioners unanimously; Sir Charles Wood told me they asked the opinion at the Admiralty, and Captain Vetch reported upon some part favourably, and upon some part unfavourably, and as I thought, and think, unfairly, and I believe that has been the cause of the delay to the present time.

3852. Is anything being done now as to those harbours?—When the honourable Member refers to anything being done, does he mean work?

3853. Yes?—No.

3854. Have the surveys been made?—Yes, and the plan of Douglas is settled.

3855. Chairman.] Are you aware that the funds to which you have referred, being a portion of the Customs dues, were, under the Customs Act of 1853, apportioned to the necessities of the island, and had reference to public works in the island generally?—I believe that was so.

3856. Are you aware also that the harbours to which you have referred are the general trading harbours of the island, and not specially harbours of refuge?—Certainly.

3857. The report which you made upon the harbours of the Isle of Man had reference rather to the local uses and advantages of the island, than to any general objects of refuge for shipping?—It had so, except the clause I have just read.

3858. Did you understand that the authorities of the Isle of Man were desirous of raising a loan upon the security of their annual share of the Customs revenue, for the purpose of making those harbours?—I have been so informed by the Receiver-general.

3859. Have you been informed that difficulties have arisen with regard to the form and manner in which that loan should be raised?—Yes, very generally.

3860. It is supposed that the law is not sufficient to enable them to convert that security and capitalise it into a loan?—I am not aware of the difficulty to which you refer.

3861. Are you aware that great attention has been paid to the subject?—By the Treasury.

3862. Are you aware that the Admiralty reported to the Treasury in favour generally of the scheme?—Yes, always being subject to the Admiralty.

3863. Can you tell the Committee that any delay arose in the matter in consequence



*J. Walker, Esq., C.E.* quence of the delay of the Admiralty?—No, I cannot. I have told the facts as they are.

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3864. *Mr. Baring.*] The facts which you have given being that Captain Vetch made a report which did not coincide with your view, not that any delay occurred in consequence of his report?—I do not know. There was an interval of 10 months between the date of my report and that of Captain Vetch.

3865. *Sir Frederick Smith.*] You have given evidence with regard to Newhaven Harbour; do you know anything of Shoreham Harbour?—Not to give evidence upon it.

3866. I think you contemplate merely dredging down the bar, and opening the space between the piers, to form the accommodation required?—The principal expense is in widening and deepening the river inside the pier.

3867. To afford accommodation, which can very easily be done?—Not very easily, because it is a work to cost 70,000*l.*; but there is no great engineering difficulty.

3868. There are no rocks to contend with; nothing but alluvial soil?—There is a piece of chalk rock at the entrance to be removed.

3869. An honourable Member has asked whether it might not be injudicious to form a harbour there without having some fortification to defend it. Are you not aware that there is a very heavy battery there about the harbour?—The question to which the honourable Member referred did not contemplate Newhaven Harbour, but the great harbour of refuge which was recommended by the Commission of 1844. I know there is at Newhaven Harbour a battery; but I do not know its strength..

3870. Are you making as much progress at Dover as you hoped to do?—No, not quite.

3871. May I ask the cause of the delay that is taking place?—The great cause is the extreme difficulty of the work, the physical difficulty of its nature and delays through damage to the contractor's staging and temporary works by storms.

3872. Does that prevent your working at the northern pier as well as at the southern pier?—It has done so hitherto; we have had no orders to commence the east pier. The going on with both piers at the same time would be much more expensive, and the east pier must be carried out a great way before it would be at all useful for any purpose of refuge. But when I state that the work at Dover is slow, and necessarily slow, I may also state that it consists now of a solid wall 80 feet thick at the bottom, and founded 45 below low water of spring tides; that 45 feet is all done in diving bells.

3873. *Chairman.*] Is it all fitted masonry work?—It is all fitted masonry work; all square blocks. It is faced with granite; but the body of it is an artificial stone which we make at the place.

3874. *Sir Frederick Smith.*] Working at the rate you are now doing, how many years do you expect it to be before the western pier is completed?—It may be perhaps from 15 to 20 years; but we could increase the speed of it.

3875. Without increasing the cost?—Not very materially; I think we could double the speed, but we could not do more.

3876. What is the cause that that speed is not doubled; the want of funds?—It is that the vote has not enabled more to be done; but I should not be justified in saying that if I were to recommend doubling the vote, the Treasury would not give attention to it. The rate of progress was at first regulated by the amount of the vote, for the part now under contract.

3877. How long will it take to finish the other pier, after being commenced?—It will take from 20 to 30 years more, unless both were to proceed contemporaneously.

3878. And therefore you are not likely to begin the further pier until this now in hand is completed, which will be 15 years hence?—That depends much upon the Government.

3879. At your present rate of working it will be 45 years before that harbour is completed?—It will be in that way of taking it; it may be done in a shorter time; I may add that even so far as the west pier has been built it has been extremely useful in a variety of ways; it has improved Dover Harbour very much, because it has shut off all the worst storms from its entrance; it has prevented the bar of shingle coming in front of Dover Harbour, which occasionally almost closed the entrance, and it forms a pier of great value for the landing and shipping

shipping of the mails to and from nearly all the world, and for the landing and shipping of passengers, which used to be difficult and tedious. Plymouth breakwater was begun in 1812, and although, like the Dover breakwater, it has been useful for many years, it is not yet completely finished.

*J. Walker, Esq., c.z.*

19 April 1858.

3880. *Chairman.*] The worst gale is the south-west?—Yes.

3881. And the works you have already done have had the effect of protecting the mouth of the harbour, in some degree, from the south-west gale?—Almost entirely; and every 100 feet we carry it out makes the protection greater.

3882. Are you familiar with the mode adopted by Mr. Rendel at Holyhead, by erecting staging, and throwing stones into the water?—Yes; that plan had been adopted at Alderney before Holyhead was begun.

3883. Is not that the quickest mode of making piers of this kind?—It is one of the ways; at Alderney we have done it in various ways; we carried it out in 1848 in the way referred to, and since the stone has been carried out in punts, because in harbours made upon that kind of foundation it is very important to have consolidation; and it will be seen, if the whole is to be done from a stage, that we cannot put it further out than the stage is carried; and whereas, by putting the stone in craft we can carry it out in advance, and thus allow time for consolidation.

3884. Where you adopt Mr. Rendel's plan of throwing the matter into the sea, you require a great abundance of materials?—Yes, they have them already at Holyhead in great abundance.

3885. Would the same plan be applicable to Dover?—No.

3886. For want of material?—For want of material; and this purpose of landing the mail, to which I have referred, could not be carried into execution. It would not do to have an inclined plane with stone thrown in, for vessels to go alongside.

3887. *Mr. Augustus Smith.*] In carrying out this breakwater in this way, is there not a great consumption and sacrifice of timber by staging?—In carrying out by staging there is.

3888. Do not you suppose that the timber could be used in such a way as to form a sort of case or framework into which the rough material might be thrown?—The honourable Member will see that one of the objects of its being thrown in is that there should be a slope from the work itself at great length carried out into the sea, the same as at Plymouth breakwater, which is now under my direction. The sea foreshore of the breakwater extends nearly 100 yards, or more; Cherbourg much further.

3889. Then there is a much greater consumption of the rough material; but do not you suppose, with the same amount of timber, that a frame might be so constructed that the rough material when thrown in and bound together by some cement thrown in at the same time would be equally firm, whilst there would not be the same amount of rock that would be required to form it, so that it might be constructed much quicker?—Your plan would be to have a timber facing.

3890. To have a timber facing?—These works are generally presumed to be perpetual; but the timber facing exposed to the action of the sea, and also to the worm, would not be durable.

3891. Is there no way in which the timber can be prepared so that it would not be subject to the action of the worm?—There are various ways, and some have been successful.

3892. Which has been successful?—The most successful, perhaps, is called Mr. Bethel's plan; that is the best, and that has been to a great degree successful; but when you consider that if one pile should be neglected to be preserved sufficiently, that pile being attacked by the worm would decay and make an opening in the frame that would make the thing very inadequate for a permanent work.

3893. *Mr. Macartney.*] When did the works at Dover commence?—About 10 years since, I think.

3894. *Lord John Hay.*] Was it known at the time it was decided to make these works at Dover, that it would take about half a century to complete them?—I do not suppose it was; I do not think at the time it was decided that any correct idea was formed as to the mode in which it could be done.

3895. In fact it was decided to execute the works, without ascertaining whether it was possible to do it in a short space of time?—I have stated the facts as they are; there are things respecting Dover Harbour about which information can be much more correctly given by gentlemen belonging to the Admiralty in this Committee than by myself.

Captain *James Vetch*, R.E., called in ; and Examined.

Captain *J. Vetch*,  
R. E.

19 April 1858.

3896. *Chairman.*] SINCE you gave your evidence before this Committee, have you considered generally about the principle upon which harbours of refuge might be properly made for the public benefit?—Am I to understand that the question refers to the peculiar structure of the work?

3897. No; as to the principle upon which they should be constructed?—At present we appear to have very little choice; there are only two modes of construction now in use; the one is, that under the charge of Mr. Walker, at Dover, which is formed by means of diving-bells. The stones are all set upon their regular beds, with as much precision as if above water; it is a very slow and very expensive mode. The other mode is by running out on tramways trucks of loose materials and throwing them down to the bottom of the sea, as at Holyhead, and then upon this, at the depth of about 12 feet below low water, raising up perpendicular walls; that is Mr. Rendel's plan at Holyhead. Between those two we have hardly any choice at present; they are very expensive, both of them. It is hoped that some of our engineering talent may be able to discover some mode of making greater progress, and at less expense.

3898. Do you know the mode which Mr. Abernethy adopted at Blyth?—I have heard a great deal of it, but I have not seen the work myself.

3899. Have you considered more particularly, since you were examined, whether, forming general harbours of refuge upon a large scale, or improving small existing harbours, would be more useful for the general purposes of security?—Since I had the honour of being examined here upon a former occasion it has occurred to me that, so far as regards the coal-ports, the Tyne, the Wear, the Tees, and Hartlepool, it might be more conducive to the safety of vessels if each of those harbours were individually improved by throwing out works at the entrance, such as are now in progress at the Tyne, and which plan I believe is now being entertained also at Sunderland.

3900. Are you aware that all those ports have considerable funds at their disposal, more or less for their own local purposes?—At the Tyne the funds are very considerable, if they are all applied to mere navigation; and at Sunderland, I believe, the River Wear Commissioners have now nearly a revenue of 20,000 *l* per year; but they appear to have done nothing with that sum towards the improvement of the entrance; there appears now to be only about two feet upon the bar there. But, I think, with the funds that they have at their disposal, they might run out a pier from the north side into 30 feet at low water, within the means which they could raise by capitalising part of their income.

3901. Have you been generally led to the opinion, that if all the local funds which are now applicable for the improvement of individual harbours were wisely appropriated for the purpose of improving the entrance to those harbours, a great object of security and safety for the vessels using those harbours, and passing those harbours, might be obtained?—That is my opinion.

3902. Would you be disposed, from the inquiries which you have recently made, to recommend that the outlay of public money for those purposes should be accompanied in some degree by contributions from those independent sources which those ports for which the harbours would be made at present possess?—Yes; those are opinions with which I have been impressed to a considerable degree since I was last before the Committee. I think there are local funds available, and if those were applied to their most useful purposes, and not frittered away in small matters, they would go a great way; and with loans from Government, might enable them to carry out the works to the desired extent.

3903. Then if the local funds to which you have adverted were applied to such a purpose, aided by public grants, the period within which the coast could be improved for refuge purposes would be very much diminished?—I think so, and that by the improvement of the entrances to the Tyne, the Wear, Hartlepool, and the Tees, a better provision would be made for the safety of vessels frequenting these ports, than by means of a large harbour of refuge at a distance, and which could not remove the difficulties and dangers of vessels in stormy weather waiting for the tides, and then crowding the entrances to a dangerous amount.

3904. Admiral *Duncombe.*] It is your opinion that improving those different harbours, especially the coal ports which you have alluded to, by their own local funds, aided perhaps by some assistance from Government, would be a more desirable

desirable way to preserve life and property and shipping connected with the coast than by any larger work that might be projected?—That is the opinion I have lately arrived at.

Captain *J. Vetch*,  
R. N.

19 April 1858.

3905. Is it your opinion, from your knowledge of the harbours I have mentioned, that there is no opportunity of so far improving them, as to make them available for the larger class of shipping, as well as for Her Majesty's navy?—I have no doubt, with respect to the Tyne and the Wear; of the Tees I am not so able to speak, but I consider that the number of colliers that now often crowd for entrance, would be much more beneficially provided for, if they could reach their own ports in safety by means of those works.

3906. I understand you to say, that the Tyne and the Wear might be so far improved, as to become harbours of refuge in a national point of view; I mean irrespective of the trade of their own ports, looking to the Baltic trade, and to Her Majesty's ships, in the event of fleets being required off that part of the coast?—They would not serve as war ports, but I think, besides affording facilities for their own shipping, they would also serve as harbours of refuge for passing vessels.

3907. Although you advocate the improvement of those separate ports for their own and the general coasting trade, you see no objection to parts of the coast being provided with larger harbours of refuge in a national point of view, such as we are to presume Holyhead and Dover to be capable of becoming?—The improvement of those coal ports would not form any drawback to the formation of harbours of refuge elsewhere for the packet-service as at Holyhead, and for war services in the Channel.

3908. But there is a great opportunity of improving those coal ports, if means are given to them for their own immediate trade?—Yes, and also serving, in some small degree, the passing trade of that peculiar part of the coast.

3909. Mr. *Clay*.] Have you either heard or read the evidence which has been given as to the chief causes of wreck upon the north-east coast before this Committee; the evidence which has been given is shortly this, that the great majority of the wrecks occur from vessels being baffled off Flamborough Head, and that then, when the weather gets very severe, they are either lost by collision, or they founder in running back to tidal harbours; now does it appear to you that the improvements which you suggest in the tidal harbours would at all diminish that great cause of wrecks?—My impression upon the subject is, that most of the wrecks of vessels belonging to the coal-ports arise from too many vessels crowding to get in at a time, and not being able, except at high water, to take those ports.

3910. Mr. *Liddell*.] I understand you, I think, distinctly to state as your opinion, that grants of public money, in aid of local funds, should be made for the purpose of improving those harbours?—Yes, to aid the local means for carrying them out.

3911. That is your opinion?—Yes.

3912. Mr. *Philips*.] You spoke of the possibility of some third mode of constructing breakwaters being devised; have you seen the model of a timber and rubble breakwater designed by Mr. Abernethy?—I have seen the model, and, from all I can learn, it seems to have acted very effectively at Blyth.

3913. Mr. *Baring*.] Any increase in the depth of water in a tidal harbour would diminish the chances of wreck from vessels failing to get in from want of water, would not it?—Most decidedly. For instance, in the Wear, they have 15 feet of water generally within the piers, but outside, upon the bar, there is only two feet just now. The north pier, if carried out to a practicable extent, might reach to 30 feet at time of low water.

3914. The effect of deepening the entrance would be to enable vessels to enter the harbour for more hours during the 24?—For a greater number of hours, at any time of the time.

Captain *John Williams*, called in; and Examined.

3915. *Chairman*.] IN what trade have you been principally engaged?—The coasting and foreign trade; principally the coasting. Capt. *J. Williams*.

3916. Have you sailed from Liverpool?—From Liverpool.

3917. And have been engaged from Liverpool in the foreign trade, have you?—In the foreign trade, when first I went to sea.

3918. Are you now engaged in trading from Liverpool to Newry?—Yes.

3919. In the foreign trade, were you in the habit of going south about or north about?—South about.

3920. Do you see any great advantages in going south about?—Certainly.

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Capt. J. Williams.

19 April 1858.

3921. Have you been very much impressed with the necessity of a harbour of refuge in the Irish Channel?—Very much, latterly.

3922. What part of the Channel do you consider the best calculated for a harbour of refuge, and where is it most required?—Carlingford Lough is very well suited, and very well placed for a harbour of refuge; there are many advantages connected with it.

3923. Will you describe what the advantages are?—In the first place, it is in the centre of a bay, and at the depth of a bay; for instance, it is in the neighbourhood of Dundrum Bay, and there is no harbour of any importance, I suppose, for 80 or 90 miles of coast.

3924. It is a bar harbour, is it not?—It is a bar harbour.

3925. Of what does the bar consist?—Of blue clay and boulder stones.

3926. Could that be easily removed?—It could.

3927. At a comparatively small cost?—At a very small cost, I think, compared with the utility of the harbour when cleared.

3928. Would the removal of that bar go a long way to supply the defect upon that part of the coast of Ireland as to a harbour of refuge?—I think it would.

3929. Without any piers being run out?—It requires nothing but the bar deepened or dredged; then it opens away into a magnificent sheet of water, and good holding ground; there is upwards of 1,000 acres within the three fathom line.

3930. Then a harbour of refuge might be made there at a very small cost?—At a very small cost.

3931. Irrespective of cost altogether, is there any part of that coast in which you would consider a harbour of refuge might be made, preferable to Carlingford Bay?—Not in that particular part of the north-east coast.

3932. But between Dublin and Belfast?—No, I do not know that there is any other place worth naming.

3933. Is there a large quantity of shipping frequenting that coast?—There are a good many; with an easterly wind it is right in the track of vessels drifting down into that bay.

3934. Have you had some very severe losses upon that coast?—Very severe indeed, from about the 6th to the 10th of this month.

3935. Was that in Carlingford Bay?—It was.

3936. Might those losses have been prevented if there had been a harbour of refuge in Carlingford Bay?—I am confident that all those lives would have been saved if there had been a good opening into Carlingford Harbour.

3937. Then if that bar had been removed you think all those lives would have been saved?—I think so; I am satisfied that if Carlingford Bar was deepened properly, and it was generally known, it would be the saving of a great many lives, and a great deal of property.

3938. Then all vessels trading between Dublin and Scotland, and all vessels trading between Liverpool and Ireland, might avail themselves of Carlingford Bay either with a north-easterly wind or a south-easterly wind?—Yes, I think with a south-westerly wind, vessels, for instance, bound to the southward, with a south-west gale, could take Carlingford Lough with the greatest ease.

3939. Mr. Macartney.] The principal heavy losses in the bight between St. John's Point and the southern part towards Kingstown, I believe, have occurred upon vessels leaving the port of Liverpool, and being overtaken with gales of wind from the north and north-east and from the south-west, at different times?—That is the fact.

3940. The vessels are a large class of vessels?—A large class of vessels.

3941. They lose their reckoning coming out, being suddenly taken with the wind?—Yes.

3942. And most of those losses have been in the Bay of Dundrum?—Yes.

3943. If it were known by sailing vessels in the Channel that the bar of Carlingford was so removed as to take the large vessels, are you of opinion that 19 times out of 20 they could bear up for Carlingford and be saved?—Certainly; there is no doubt of that.

3944. Do you know Dundrum Bay very well?—I do.

3945. It is one of the most dangerous bays in Ireland, is it not?—It is.

3946. There is a constant indraught to the bay, is there not?—Yes.

3947. When once a vessel is caught by the indraught, they must go on shore there is nothing to save them?—No.

3948. There

3948. There was a very large vessel lost in Dundrum Bay lately, I believe? —There was; a barque called the "Mary Stoddart," and also a brig called the "Trident;" the crew of the barque all perished.

Capt. J. Williams.

19 April 1858.

3949. Do you know what number of lives was lost?—I do not know; it is not known what people she had on board, but I think nine or ten must have perished.

3950. Are you of opinion that any structure within the points I speak of, between Mountain Foot and what is called St. John's Point, could be made at any reasonable cost to become a refuge harbour equal to that of removing Carlingford Bar?—Carlingford would be the easiest done, and would open the way to the best anchorage upon that coast.

3951. Mr. *Hassard*.] Would that barque and the brig have been saved if they had been able to run for Carlingford?—I am satisfied they would have been saved, inasmuch as the vessels were seen in the offing drifting down upon the lee shore; in fact, drifting upon certain destruction.

3952. Were they sufficiently to windward to have made it?—Yes, to have made Carlingford, if it had been known that the bar would have taken them.

3953. Mr. *Baring*.] There is a channel at present?—There is a channel at present; but it requires deepening.

*William Bennett Hays, Esq.*, called in; and Examined.

3954. *Chairman*.] WHAT is that model which you have before you?—It is a model which I have made of a breakwater adapted to harbours of refuge and other works in deep water.

*W. B. Hays, Esq.*

3955. Has it ever been applied?—I have one now being erected upon the coast of Australia, upon the same principle.

3956. Near what port?—Near the port of Adelaide, in South Australia.

3957. Is the erection taking place under your direction?—No, it is not. The ironwork for the structure was made in this country under my directions, and sent out to be put up.

3958. Are you the inventor?—I am.

3959. Can you describe the advantages of the plan in such a way that it can be taken down upon the evidence?—Yes. The chief advantages are, first, its small cost; and, secondly, the facility and rapidity with which it could be erected. Another and very important advantage is that due to the inconsiderable depth of the actual breakwater below the surface, whereby the flow of the tide would be uninterrupted, and all risk of silting within the harbour avoided. I will shortly describe the mode of structure. The breakwater consists essentially of a number of parallel plates of iron, inclined at an angle of about 55 or 60 degrees, with the horizon towards the sea. These are framed together in lengths of 30 or 40 or 50 feet, and supported upon bays or piers of wrought-iron piles, strongly braced together, which, when the nature of the ground would permit, would be fixed by means of the patent screw, commonly known as the screw pile. The mode of action of these plates is peculiar. If you will allow me to put this diagram into your hands, I will explain by the aid of it (*handing the same to the Chairman*). The plates are put at such an angle that the ordinary waves of the sea would come nearly in the direction of the plates themselves. If you direct your attention to the diagram which I have put into your hands, you will see that the plates are represented by the strong lines numbered respectively from 1 to 12; the water-level is marked upon one side, and on the other side the line representing the wave. If you observe, first, the dotted line E F near the bottom, it is supposed to be the direction in which the water would enter between the plates Nos. 4 and 5; it would strike the underside of the plate No. 4, and would be reverberated backward and forward, as shown by the lines F G, G H, and H I. Above that is a dotted line A B, showing the probable direction in which the water would strike the plate No. 3 at the point B. It would be again also reverberated from B to C, and thence to D. The effect of the action would be, that there would be an almost entire neutralisation of the forces of the wave upon these plates; that is to say, the wave would tend equally to drive the plates forward, and also by reverberation or reaction to drive them backward at the same moment. Consequently there would be a neutralisation, and the structure would be freed in a great measure from the violent action of the sea tending to destroy it.

*W. B. Hays, Esq.*

19 April 1858.

3960. Has it ever been tried?—It has been tried upon a moderate scale, and the action has been very clearly shown to be what I have described.

3961. Upon what scale and where has the experiment been made?—The experiment was made in the Bristol Channel, near Newport; a small structure upon this principle was made framed of wood, and fixed or rather floated upon the surface of the water, by means of which the action of the sea upon those boards could be very nicely observed. The section shown in the accompanying drawing exhibits the manner in which the water of the wave acts between the plates. It passes up between them; becomes dispersed and broken up into fragments, and quietly reflows, leaving almost perfectly still water on the lee side.

3962. It has never been tried upon any large scale?—No; the one which is now being erected is large, but it is not known what the result of that will be.

3963. Is it very costly?—It is quite the reverse. I estimate generally that a structure adapted to a depth of water of 36 feet at low water, with a rise of tide of 10 feet, might be constructed for something like from 45 *l.* to 60 *l.* per foot run, which is, I believe, somewhat less than half the cost of the cheapest stone breakwater which has yet been erected; I think I am right in saying that Portland Breakwater is one of the cheapest, and that has cost 120 *l.* a foot; whereas that at Dover, I believe, is costing something like 300 *l.* a foot.

3964. What would be the effect of the waves upon the harbour inside in passing through these interstices; would they not cause considerable motion in the harbour inside?—I do not think they would; I do not think the waves will pass over these plates at all. The upper edge of each of these plates, in the model, is 12 feet above the lower edge of the same plate.

3965. Then you expect that the effect of this breakwater would be to make the waves recoil, and not to pass through into the harbour inside, as much as if it was a stone wall?—Almost as much; the only thing which could cause agitation inside would be the effect of the undulation which passed beneath the lower part of the lower plate, and I think that would not be of any serious consequence; I think that the water would be sufficiently still for all the purposes required for a harbour of refuge.

3966. *Mr. Liddell.*] Everything would depend upon the solidity of the stagework upon which it rested?—Precisely.

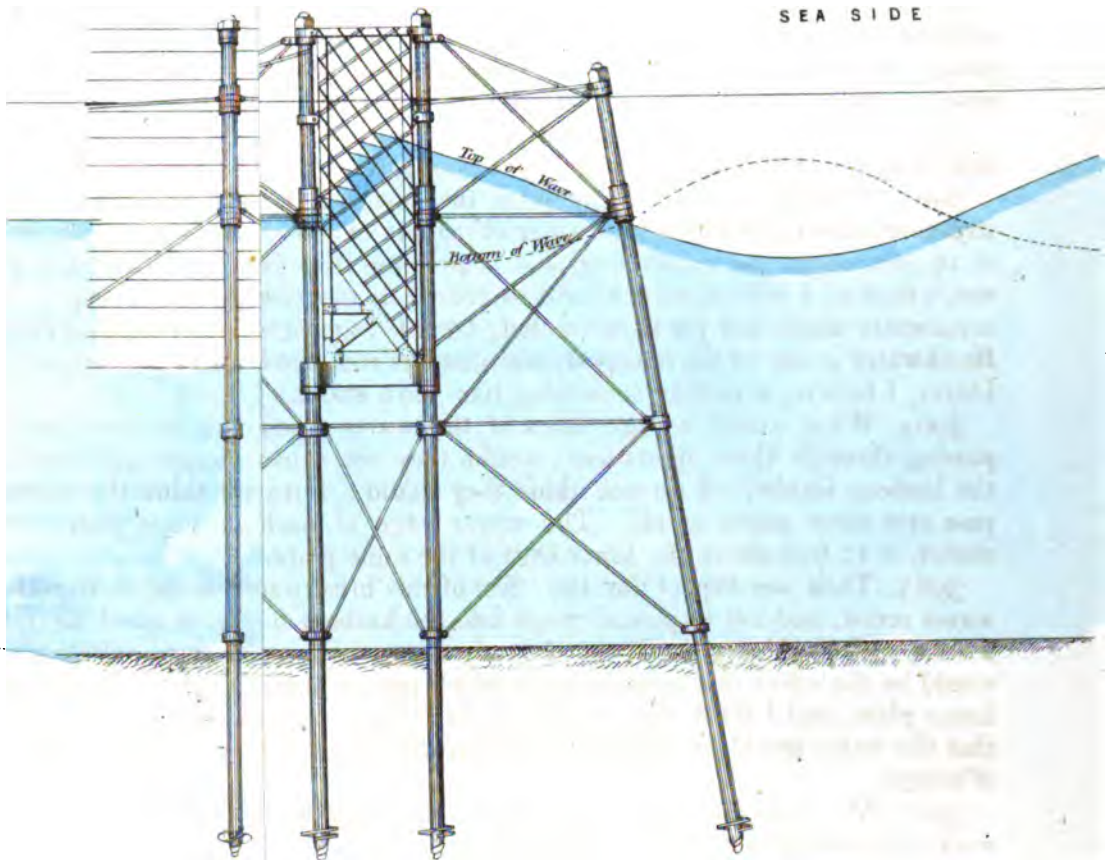
3967. You could not possibly, I imagine, fix that stagework upon rock?—I do not think it will be impossible; it would be more difficult upon rock than upon ground in which screw piles could be placed.

3968. How would you fix it upon shifting sands?—In the same manner as lighthouses have been erected upon shifting sands, by means of those screw piles. As many as 15 lighthouses I know have been fixed upon that principle. Screw piles have been used in as great a depth as 60 feet.

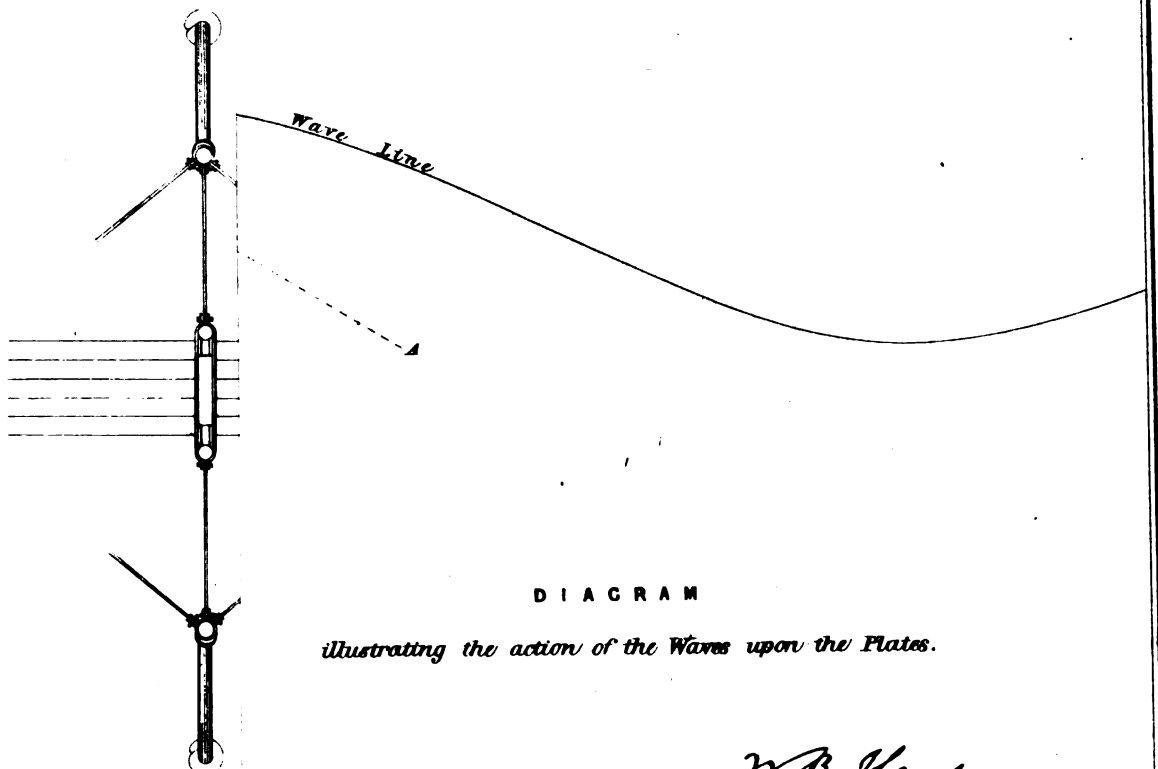
3969. *Chairman.*] Will you put in drawings upon a small scale?—I will prepare them, and put them in.



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*W. B. Hoys*  
*April 1858.*

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## Appendix, No. 1.

Appendix, No. 1.

PAPERS delivered in by *Andrew Boyd, Esq.*, 25 February 1858.

ABSTRACT of RETURNS of VESSELS entered Inwards at *Peterhead* and *Wick*, with the Number entered at each Place for Refuge.

### PETERHEAD.

	1855:		1856:		1857:	
	Number of Vessels.	Tonnage.	Number of Vessels.	Tonnage.	Number of Vessels.	Tonnage.
Entered Inwards at Custom House:						
Coasting Trade:						
British Vessels - - -	370	- - -	- - -	- - -	345	
Foreign Vessels - - -	1	- - -	- - -	- - -	1	
	371	22,243	339	20,942	346	22,079
Foreign Trade:						
British Vessels - - -	38	- - -	46	- - -	41	
Foreign Vessels - - -	26	- - -	27	- - -	36	
	64	10,801	73	11,820	77	11,453
Entered Harbours for Refuge, as reported by Collectors of Shore Dues - - - - -	228	13,659	224	12,354	207	14,081
	663	46,703	636	45,116	630	47,612

### WICK.

Entered Inwards at Custom House:						
Coasting Trade:						
British Vessels - - -	399	- - -	409	- - -	427	
Foreign Vessels - - -	15	- - -	11	- - -	5	
	414	39,930	426	39,849	432	37,665
Foreign Trade:						
British Vessels - - -	28	- - -	26	- - -	23	
Foreign Vessels - - -	142	- - -	99	- - -	110	
	170	9,000	125	6,841	133	7,757
Entered Harbour for Refuge, as reported by Comptroller and Collector of Customs, under 30 Vessels of small Tonnage, say -	30	1,500	30	1,500	30	1,500
	614	50,440	575	48,190	595	46,922

## Appendix, No. 1.

RETURN of the VESSELS which entered the Harbour of *Peterhead* for REFUGE from  
1848 to 1857 inclusive.

Year.	Number.	Tons.	Year.	Number.	Tons.
1848 - - -	195	9,665	1853 - - -	168	11,266
1849 - - -	180	8,915	1854 - - -	322	18,343
1850 - - -	192	10,462	1855 - - -	228	13,659
1851 - - -	146	7,702	1856 - - -	224	12,354
1852 - - -	138	7,477	1857 - - -	207	14,081

## Appendix, No. 2.

## Appendix, No. 2.

PAPER and PLAN delivered in by *David Stevenson, Esq.*, and referred to in his Evidence,  
25 February 1858.

AVERAGE Annual Number and Tonnage of Oversea and Coasting Vessels which paid  
Light Dues for *Buchanness* and *Dunnethad* Lighthouses, from 1846 to 1853 inclusive.

	Average Annual Number.		Average Annual Tonnage.		Totals of Average Number and Tonnage.	
	Coasting.	Oversea.	Coasting.	Oversea.	Number.	Tonnage.
<i>Buchanness</i> per annum -	5,430	4,257	448,231	614,229	9,687	1,062,460
<i>Dunnethad</i> per annum -	1,716	2,135	128,408	467,938	3,851	586,346
ANNUAL EXCESS of Vessels and Tonnage at <i>Buchan-</i> <i>ness</i> over <i>Dunnethad</i> -	3,714	2,122	319,823	156,291	5,836	476,114

*David Stevenson.*

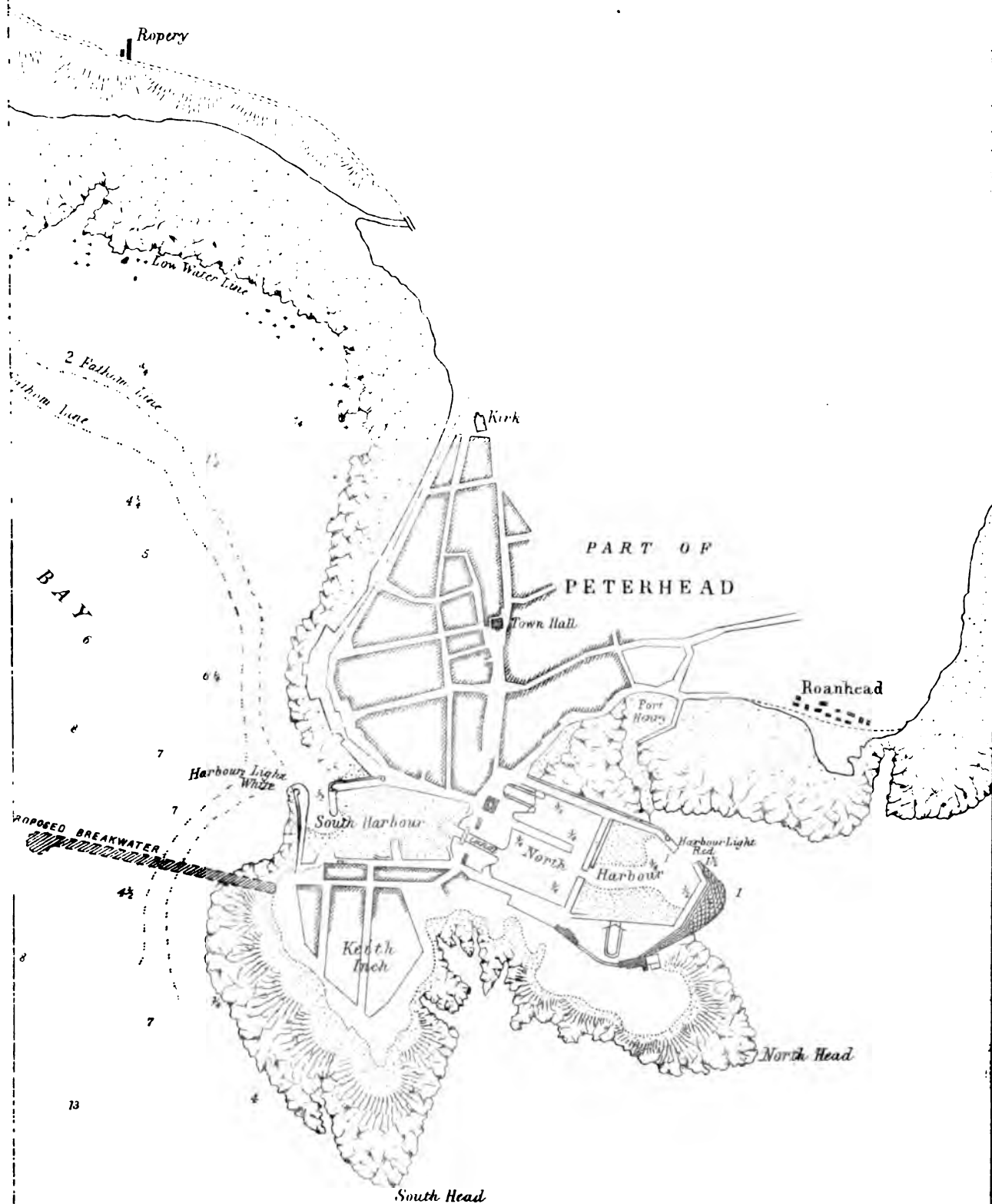
## Appendix, No. 3.

## Appendix, No. 3.

## NEWHAVEN HARBOUR.

ESTIMATE referred to in *Mr. Walker's* Evidence.

	£.
1. The dredging, the amount of which is - - - - -	27,000
2. The extension of the Groyne or Breakwater Pier on the west side of the harbour - - - - -	16,500
3. Strengthening the West Pier - - - - -	7,500
4. Dwarf wharfing from the inner ends of the piers upwards - - -	13,000
Making a Total of - - - - - £.	64,000
Or, with minor and contingent expenses - - - - - £.	70,000





## Appendix, No. 4.

## Appendix, No. 4.

PAPERS delivered in by Sir Samuel Morton Peto, Bart., 15 April 1858.

STATEMENT of the Number and Value of VESSELS and CARGO coming into the Harbour of Lowestoft for Refuge from Stress of Weather, and in crippled and disabled states, during the three Years previous to the carrying out the Outer Harbour, and during the Years subsequent to the formation of the Outer Harbour.

							£	s	d
1844	-	-	-	6 Vessels put in with damage	-	-	6,300	-	-
1845	-	-	-	5 Ditto - - - ditto	-	-	4,350	-	-
1846	-	-	-	3 Ditto - - - ditto	-	-	4,100	-	-
							14,750	-	-
Since the Piers have been carried out:									
1847	-	-	-	14 Vessels put in with damage	-	-	14,300	-	-
1848	-	-	-	17 Ditto - - - ditto	-	-	21,050	-	-
1849	-	-	-	42 Ditto - - - ditto	-	-	61,790	-	-
1850	-	-	-	57 Ditto - - - ditto	-	-	68,870	-	-
1851	-	-	-	44 Ditto - - - ditto	-	-	42,010	-	-
1852	-	-	-	32 Ditto - - - ditto	-	-	42,375	-	-
1853	-	-	-	52 Ditto - - - ditto	-	-	73,060	-	-
1854	-	-	-	65 Ditto - - - ditto	-	-	65,650	-	-
1855	-	-	-	41 Ditto - - - ditto	-	-	44,500	-	-
1856	-	-	-	50 Ditto - - - ditto	-	-	56,240	-	-
1857	-	-	-	46 Ditto - - - ditto	-	-	53,110	-	-
TOTAL Value of Property - - - £							557,705	-	-

Mr. Gowing will be fully competent to state the complete efficiency of the Harbour, as regards the means of entry, &c.; and that the great requirement is, the providing in the Inner Harbour additional room for the laying and stowing Vessels running in for refuge.



## Appendix, No. 4.

VESSELS compelled to pass *Yarmouth* Harbour (being unable to enter there), and took Refuge at *Lowestoft* Harbour.

DATE.	PARTICULARS.
1855:	
23 January -	Brig "Maria," Runsey, master, of and from Sunderland, 192 tons register, drawing 13½ feet water.
6 February	The "Expedite," Norman, master, of Malmo, from Königsberg, laden with wheat for London.
26 " -	Brig "Maryo," Atkinson, master, of and from Sunderland for Almeria, with coals, 266 tons register, drawing 14 feet 10 inches water, towed in by Yarmouth steam tug.
22 March -	The schooner "Elizabeth," of and for Teignmouth, from Shields, 101 tons register, drawing 12 feet water.
4 August -	The "Marthas," Miller, master, of and for Portsmouth, from Seaham, 172 tons register, drawing 12 feet water.
9 October -	The "Gulnare," Golder, of and from Shoreham, 127 tons register, drawing 12 feet water.
1 November	The brig "Tyneside," Captain Petrie, of and for Shields from London.
17 December	The "General Codrington," screw steamer, Bradley, master, of and from London for Newcastle.
22 " -	The brig "Corinna," Wilson, master, of and from Newcastle for Constantinople, 301 tons register, drawing 16 feet water.
1856:	
2 January -	"Harmony," of Shields, Ikes, master, of and from Shields for London, with coals, 241 tons register, drawing 15½ feet water.
26 February	The "Isabella Grinley," Captain Gore, of Barber Sand, drawing 9 feet water.
5 March -	The barque "Gratitude," Wilson, master, from Alexandria for Hull, with wheat, drawing 16 feet water.
14 " -	The brig "Haabet," Jensen, master, of Frederickschal, from Cette for Bergen, with salt, 365 tons register, drawing 13½ feet water.
15 " -	The Hanoverian schooner "Wilhelm Johanna," Captain Hermann. The steam ship "William Joliffe," Dawson, master, from London to Yarmouth; having arrived in Yarmouth Roads, finding it impossible to enter the harbour, was compelled to let go his anchor and chain. After riding there a considerable time the chain parted, which compelled the master to run for Lowestoft, where she arrived about an hour afterwards, and safely landed all her passengers.

A STATEMENT showing the Answers of the Port of *Lowestoft*, for the Four Years ended 3 December 1855.

	1852.	1853.	1854.	1855.
1. Receipts for duties - - - £.	812	3,248	6,488	6,611
2. Foreign trade - {				
Cargoes inwards -	78	143	125	96
" outwards	20	41	31	30
3. Coasting trade - {				
Cargoes inwards -	841	960	871	1,000
" outwards	180	232	257	234
4. Coals imported - - - Tons	65,328	77,190	78,495	93,884
5. Cattle, sheep, &c. imported - - -	18,804	25,681	17,741	14,003
6. Loads of timber - - - -	2,020	6,350	7,620	7,560
7. Vessels for refuge - {				
Number - -	496	601	871	632
Tonnage - -	36,382	56,091	74,733	56,714
8. Vessels registered - {				
Number - -	47	69	92	108
Tonnage - -	2,294	5,095	5,176	5,650
9. Value of exports - - - - £.	4,220	26,900	51,400	49,500
10. Annual average of fishing craft using the port -				
{ Smacks - -				50
{ Luggers - -				120

John Robertson,  
Collector of Customs.

## 1.—VESSELS FOR REFUGE.

STATEMENT showing the Number of VESSELS which have taken Refuge in this Harbour during each of the Years 1852 to 1857 inclusive, showing the Extent to which *Lowestoft* has been used as a Place for Shelter.

	1852.	1853.	1854.	1855.	1856.	1857.
Vessels - - -	496	601	871	632	698	584
Tonnage - - -	38,382	56,091	74,733	56,714	69,334	53,980

## 2.—ANCHORS SALVED IN ROADSTEAD.

The Number of Anchors salved by Beachmen in *Lowestoft Roads*, and delivered to the Receiver of Wrecks since his Appointment in October 1855, has been as follows, viz.—

During three months ended 31st December 1855 - - -	28
During year ended 31st December 1856 - - -	122
During year ended 31st December 1857 - - -	114
From 1st January to 22d March 1858 - - -	71

STATEMENT showing Shipping Trade of *Lowestoft*.

## 1.—VESSELS ENTERED INWARDS.

	1852.	1853.	1854.	1855.	1856.	1857.
COASTING TRADE:						
Vessels - - -	841	960	871	1,000	999	758
Tonnage - - -	62,106	74,734	73,399	82,029	86,435	77,098
FOREIGN TRADE:						
Vessels - - -	78	143	125	96	90	132
Tonnage - - -	24,649	39,025	31,065	25,476	27,264	38,513

## 2.—VESSELS CLEARED OUTWARDS.

	1852.	1853.	1854.	1855.	1856.	1857.
FOREIGN TRADE:						
Vessels - - -	20	41	31	30	12	14
Tonnage - - -	7,940	13,783	11,386	11,208	5,662	4,756
COASTING TRADE:						
Vessels - - -	180	232	257	234	232	224
Tonnage - - -	10,143	12,962	15,104	12,785	12,484	12,420

Appendix, No. 4.

STATEMENT showing Shipping Trade of *Lowestoft*—continued.

## 3.—VESSELS REGISTERED AT THE PORT.

	1852.	1853.	1854.	1855.	1856.	1857.
Vessels - - -	47	69	92	108	120	143
Tonnage - - -	2,294	5,095	5,176	5,650	6,315	6,936

Appendix, No. 5.

Appendix, No. 5.

PAPERS delivered in by *J. Walker, Esq., c. z.*, 12 April 1858.

## YARMOUTH HARBOUR AND ROADS.

THE REPORT of *James Walker, Esq., c. z., LL.D., F.R.S.L. & E., &c.*, on *Yarmouth*, as a HARBOUR of REFUGE, dated 16th March 1858.To *Isaac Preston, junior, Esq., Clerk to the Commissioners of the Haven of Great Yarmouth,* and *C. Cory, Esq., Town Clerk of Great Yarmouth.*

Gentlemen.

THE substance of the directions given to me, dated 3d February 1858, from the Joint Committee of the Yarmouth Haven Commissioners and Corporation of the Town of Yarmouth, are, that I should consider and report on the best plan to be adopted, and what is required in an engineering view, for forming a harbour of refuge at Yarmouth. These instructions have been explained, and their limits enlarged, by corresponding and conferring with both of you, with Captain Smyth, R. N., the pier-master, and Mr. Teasdel, the deputy engineer.

I do not propose to discuss the comparative merits of the numerous places which have been suggested for harbours of refuge along the coast, but to confine my observations to Yarmouth, its position, present advantages, and capability of improvement.

It is proper, however, to mention, that the harbour nearest to Yarmouth on the south, that is entitled to the character of a harbour of refuge, is Harwich, 50 miles distant, the entrance to which has lately been deepened, under the directions of the Admiralty, to 18 feet at low-water springs, and 27 feet high-water of neap tides. The harbour, when entered, is safe, capacious, and sufficiently deep for a large fleet of ships of the greatest tonnage.

To the north of Yarmouth the nearest refuge is at the mouth of the Humber, viz., Grimsby Roads on the south and Hawke Roads on the north side of the river. The Humber is 90 miles from Yarmouth.

The coast near Yarmouth lies more in the general track of vessels than either Harwich or the Humber does: frequently several hundred vessels pass through Yarmouth Roads in a day, and as many as 2,000 have been known to do so; the number of vessels that pass annually through these Roads is estimated at 40,000, of 5,200,000 tons burthen. The sand banks with which the whole coast between Yarmouth and the mouth of the Thames is surrounded render the passage so intricate that it has to be "threaded" through by the guides afforded by Trinity lights and buoys, which are liable to be obscured by fogs, and to be displaced, while the contracted space between the shoals makes the passage difficult during stormy weather.

These

These considerations, and the very great trade, particularly in coal, between the northern and southern ports, render a refuge upon the Norfolk coast very important; while the position of the sands that form the Yarmouth Roads, with the advantage of having the harbour for an inner or subsidiary shelter, makes Yarmouth a very eligible situation for the purpose. This is proved practically by the fact, reported to me by Captain Smyth, that he has seen 1,400 to 1,500 sail of wind-bound or storm-bound vessels, of all burthens from 100 to 1,000 tons, in the Roads at the same time. Captain Smyth estimates these at 280,000 tons of shipping.

The entrances to Yarmouth Roads by Hewett's Gat on the south-east, and by the Cockle Gat on the north, are sufficient for the largest ships; and there is room in the roadstead, with ample depth, for the largest men of war. The importance of Yarmouth Roads, in a national sense, is amply illustrated by the facts that Duncan's fleet, before the battle of Camperdown in 1797—the Baltic fleet that attacked Copenhagen in 1801, under Parker, to the number of 53 sail—and Gambier's fleet, before the capture of Copenhagen in 1807, made these Roads their rendezvous. Sir James Ross informs me that in 1812 the fleet under the command of Sir James Saumarez, amounting to 20 sail of the line, assembled in Yarmouth Roads before going to the Baltic; and in the winter of that year 15 sail of the line anchored in the Roads. Sir James was an officer in the fleet.

The length of Yarmouth Roadstead is nearly nine nautical miles; the average width is  $1\frac{1}{2}$  mile; the area, 10,000 acres with not less than three fathoms, and 9,000 acres with not less than four fathoms at low water. The bottom is generally of a clayey nature, and good holding ground. The breakwater is formed by the Scroby and Corten Sands, which vary in height from low water to 12 feet below low water; averaging about 6 feet below low water, and 12 feet below high water.

To an extent, therefore, Yarmouth Roads are already a harbour of refuge; but that they are not a secure refuge with gales from the N.N.E. to the S.S.E., is proved by the fact of the large number of vessels that are annually wrecked and driven ashore there, with considerable loss of life, although the loss of life is much decreased by the ample provision of life-boats and life apparatus at Yarmouth.

That the improvement of Yarmouth Roads is therefore deserving the attention of the Legislature and of the public, cannot be doubted; but care is at the same time requisite, lest the desirableness of the object should lead to the recommendation and adoption of expensive plans, without a reasonable prospect of success.

From the shifting nature of the sands, which requires the frequent removal of the buoys, nothing in the way of a solid stone breakwater can be placed upon them, without the danger of such an alteration in the channel as might convert what was intended for a breakwater upon sand into a sunken rock in the roadstead, dangerous to shipping, and an obstruction to the passage of the tide.

A floating breakwater would not be liable to this objection, but I have not seen any scheme of the kind at all suitable for Yarmouth Roads. That a few miles, or even one mile of floats, would break off the seas or waves from a number of vessels, is true, although there would still be a swell inside such a breakwater (or rather breakwave) in rough weather; and if the light vessels and buoys (which are comparatively small objects, and which, it may be concluded, are carefully attended to, and well found in ground tackle) do, by the wear of their chains or otherwise, not unfrequently go adrift, it is to be feared that large floating bodies, such as these breakwaters, would be much more liable to such contingencies. Upon the whole, I consider them totally unfit for the purpose.

Another and frequently suggested plan for a breakwater is by means of piles driven into the ground, between which piles a screen of timber or iron, reaching from low to above high water, is placed. The range of tide at Yarmouth being only six feet, renders it, so far, a fitting place for such an erection; but without going into a detailed description of the many designs for harbours formed in this way, there are difficulties in the application of any such scheme on a large scale for Yarmouth which more than counterbalance this advantage, if the consideration have reference to a public harbour capable of receiving and sheltering a large fleet of vessels.

If such a structure were made upon the Scroby Sand, it is evident that any considerable shifting of the sand would be fatal to it; while the depth in the roads (not less than 30 feet at low water, and generally twice that depth) is such as to render piles driven into the ground, so as to enclose a large space of deep water, out of the question. This will, I apprehend, be considered a sufficient reason for disposing of this plan also, without going into any estimate of cost or otherwise.

Mr. Teasdel, your deputy engineer, has suggested a plan showing a breakwater upon piles to enclose a space near the shore as a harbour, and his experience and practical knowledge entitle his suggestions to attention. The whole area enclosed by Mr. Teasdel's plan, having three fathoms water, is 17 acres, too small to be considered as a harbour for general refuge. It is, however, as sensible, if not the most sensible, construction for a breakwater, of the kind, that I have seen. Mr. Teasdel estimates the cost at 34 l. per lineal foot; and the length being 3,400 feet, makes an amount of 115,600 l. His calculations have been made with care, and are correct. He proposes placing the timber piles, which are to be 12 feet 6 inches apart, in cast-iron cases, to prevent the timber from attacks by the worm. The spaces between the piles, up to low water, to be open, in order to pass the tide; and from low water upwards, for 11 feet in height, to have partly wrought-iron plates and partly oak planking, placed horizontally, to break the seas. I beg to submit his plan, and a reduction of it also to the scale of the Admiralty Chart, by which you will see the com-

## Appendix, No. 5.

paratively small portion or area it encloses. Mr. Teasdel says truly that the length may be extended 1,000 feet further south; but still I apprehend that neither the area nor the depth would be considered such as to entitle it to the character of a safe public harbour for shipping generally, and the cost would increase with the length.

There remains, therefore, only to be considered the plan of a solid stone breakwater, built, not upon the Scroby Sand, but in the Roads, in deep water; and I do not doubt the practicability of a permanent construction being made in this way. Up to or near to low water it might be of rubble stone, thrown in, to stand at its natural slope, as Plymouth Breakwater; or like the Admiralty Piers at Jersey, Alderney, Holyhead, and Portland; or of blocks of artificial stone faced with granite or other durable stone, all set in diving bells, as at Dover.

I have not gone into any detail of a plan or estimate for such a work; but when the depth of water in the roadstead, the length of breakwater that would be required to make an efficient harbour, and the distance from any plentiful supply of stone, are considered, the cost would no doubt be very large; as much, if not more so, than any of the breakwaters I have named, in all which, except Dover, stone is near and abundant. In the cases, however, of Plymouth, Alderney, and Cherbourg breakwaters, and others that have deep water on the sea side, a large proportion of the expense is caused by the very long flat foreshores that have to be carried out on that side, to protect the foot of the piers against heavy seas. In the case of Yarmouth but little of this would be required, as the sands would break the seas, and form a natural foreshore, and therefore in this respect a great saving would be effected.

The form of the breakwater would have to be convex towards the sea, or turned inwards at the ends, like Plymouth, to protect vessels from heavy seas during north and south gales; but in the case of Yarmouth great care would have to be taken to prevent injurious interference with the tidal current, upon which the depth of water in the roadstead depends.

After the best consideration I have been able to give to the subject, and with a strong prejudice in favour of Yarmouth, I consider that, as respects a great harbour of refuge, you must be satisfied with having one of the best, if not the best roadstead in England, and that your views, to be practically useful, must be directed inwards to the improvement of the present harbour and its entrance; but this is not a private or local object, nor is it unconnected with the harbour of refuge question. On the contrary, the harbour, from having the roads in front, and extending for miles on each side, becomes, by this particular feature, more important and useful as a subsidiary harbour in case of vessels parting from their anchors, or being damaged while in the roadstead, or when at sea and obliged by stress of weather to take refuge. It is in this view that public money would be likely to be granted for its enlargement or improvement, although its importance as a port for trade is great—the annual number of merchant vessels that use the port being about 2,700, with a tonnage of 225,000; of fishing vessels about 620, with a tonnage of 20,000, employing 5,000 hands, Yarmouth being (it is stated) the largest fishing station in the kingdom. There are also the Government Naval Hospital, and the Arsenal, now used as barracks.

The depth at and near the entrance of Yarmouth Harbour, at present, is  $9\frac{1}{2}$  feet to 10 feet at low water, and  $15\frac{1}{2}$  feet at high water of spring tides. The harbour's mouth is open to easterly and north-easterly winds, excepting what shelter is afforded by the Scroby Sands (two miles distant), until the vessel gets within the piers, which are only 230 feet apart.

These are imperfections: Can they be remedied?

That the first of them (the small depth) is capable of improvement, has been proved by the fact that upwards of 50 per cent. has been added to the low-water depth since 1825, when I was first consulted by the Commissioners. The depth upon the bar at low water was then only from two feet to six feet; at high water, from eight feet to 12 feet, and uncertain; now there is very little bar at all, and very little variation in depth for some distance out from the piers, as may be seen by Captain Smyth's soundings. This has been accomplished partly by the extension of the north pier, but chiefly by giving uniformity to the channel of the river, and by the removal of the projections, bays, and shoals, which tended to decrease the strength of the current and to impede the flow of the tide. The works done to effect these objects have been, dredging the bottom and planking and piling the sides, to as great an extent as the funds at the time would allow. The whole expenditure in the above works, up to the present time, has been about 32,000 £. Still, the range or lift of tide opposite the town (two-and-a-half miles from the entrance) is only three feet four inches, while at the harbour's mouth it is six feet, the difference being two feet eight inches; and the contents of the Braydon (which is the lungs of the harbour) are diminished to the same extent. It is reasonable to conclude, that if the above remedies were applied more largely than they have been, a greater than the present depth in the harbour and at its entrance would be consequent.

As respects the danger of entering, the extension of the piers has, by preventing the cross current, continued the strength of the river ebbing tide into deeper water, and has enabled vessels to get under the shelter of the piers, which advantage would be increased were a still greater protection given. This would, I think, be best done by forming a pier or groyne from behind each of the present piers, and particularly the north pier, extended into deeper water, which would stop the sand from coming in front of the harbour, shut off the heavy seas with a north or south wind, and give the easterly seas more room to spread, so that a vessel might be sheltered before getting between the piers.

Then also an improvement in the river by a second row of longer piles, and further deepening and adjusting the channel, would be likely to add to the depth of the entrance, the

the bottom of which is sand, and easily moved. Suppose that, by the above means, an addition of 4 feet or 5 feet could be obtained at the entrance, which I do not consider at all improbable, this would give 14 to 16 feet at the low water, and 20 to 22 feet at the high water, of average springs.\* The value of the river Yare, as respects the traffic of the town of Yarmouth and of the country, and also as a subsidiary harbour of refuge, would thus be much increased; small vessels of war, transports, and steam gunboats, would be able to leave and enter at all times of tide, and almost in all weathers; and the ground on the side of the river is suitable for a Government or commercial dock or basin, should such be thought desirable.

I have only to add, that better information than I am possessed of, as to the state of the present piers, the depth of the piles, &c., is requisite to justify my even guessing at the cost of the works I have stated in outline; I can say, however, that to do them effectually the amount would be great, but not so great as the improvement that would result from them.

23, Great George-street,  
16 March 1858.

I have, &c.  
(signed) *James Walker.*

EXTRACTS from the PETITION of the Corporation of *Great Yarmouth*, showing the necessity of constructing a HARBOUR of REFUGE at that Place.

THE roadstead of Great Yarmouth comprises about 8,000 acres, and, to a certain extent, is a natural harbour of refuge; the water is deep; the anchorage good. The sands around the roadstead protect it from the heavy seas of the German Ocean, and it is a salient point on the coast.

There are only four entrances to Yarmouth Roads, viz. :—

The north entrance, commencing at Winterton, through the Cackle Gat, and the course through which is S. W. to N. E.

The south-east entrance through Hewett's Gat, opposite to Yarmouth Harbour; the course through which is S. S. E. and N. N. W.

Both these gateways are capable of admitting line-of-battle ships.

And the two south entrances are one through the Stanford Channel, and the other through the Pakefield Channel, south of Lowestoft. These channels are only used by vessels of light draught; but in gales from the E. S. E. to the S. S. W. no vessels can take these channels without great risk.

Vessels driven from the Downs with loss of anchors, in southerly gales, frequently run through Hewett's Gat into Yarmouth Roads for shelter, and for anchors, cables, spars, sails, &c., but for want of a harbour of refuge, are in some cases obliged to be put on to the beach.

The tract through the roadstead, which is N. N. E. and S. S. W., is the nearest and most protected highway on the eastern coast, and through, and near these Roads, nearly all the eastern coasting traffic of the kingdom passes, as well as all the traffic to the north, from foreign places south of Yarmouth.

As many as 2,000 sail have passed through these Roads in a day.

The number of trading vessels (not including those engaged in the fisheries) which pass through these Roads, is estimated at 40,000 per annum, comprising a total tonnage of about 5,200,000 tons.

One thousand four hundred ships have been known to lie at anchor in the Roads at one time, and frequently several hundreds are anchored there, and detained by contrary winds.

In time of war the roads have been used as a rendezvous for Her Majesty's navy.

The destructive gales on the coast are from the N. N. E. to the S. S. E., and these gales sweep through the Roads, and cause the large number of wrecks and damage that take place on these coasts.

The number of vessels stranded and wrecked off the coast, or put into the harbour damaged, during the last three years was 554.

Large numbers of vessels are frequently driven ashore, and on the sands, and life and property sacrificed to a very considerable extent.

In one gale 50 sail were driven ashore.

In another gale 27 sail were driven ashore.

In another gale 20 sail were driven ashore; and no winters pass without vessels being driven ashore, and wrecked upon the beach and sands.

This, however, does not represent the total loss arising on this coast (in a great measure from the supposed security of the shelter of the Roads).

When a gale springs up, numbers of vessels run for and anchor in the Roads. If the gale increases, their safety becomes endangered, and if they part from their anchors in the northerly, easterly, and southerly gales, they have no refuge, and are obliged to quit the roadstead or run to the beach.

It

\* Captain Washington, Hydrographer to the Admiralty, informs me that the draught of water of a very large class of Government steamers, which in the event of war would be chiefly used to protect the eastern coast, would not exceed 15 feet. Mr. Ritchie, Surveyor of Lloyds, informs me that the draught of a merchantman of 800 tons burthen is 20 feet; of 1,000 tons burthen, 21 feet.

## Appendix, No. 5.

It is then that a harbour of refuge is required, into which these vessels can run; but none exists on the coast between the Humber and Harwich, and these harbours are too distant for safety; and navigation amongst the shoals and sands of the eastern coast is the most dangerous in the kingdom.

The danger during the gales from the eastward is greatly increased by the attempts to run out of the gateways to avoid the beach or sands, and in snow-storms it is frequently certain destruction to attempt it; but if a harbour of refuge were formed here, the safety of numbers of lives and vessels would be insured.

Ships frequently sink in the Roads at their anchors, and several hundred vessels per annum break adrift, or cut and run during those gales of wind that sweep the roadstead.

In 1819, 500 vessels broke adrift in the Roads in a gale.

The number of anchors actually picked up in the Roads during the last three years was about 850.

This represents about one-third only of the number lost, as many have no buoys, and others do not pay for the labour of raising them, and a large number are never recovered at all.

These anchors are slipped, or parted from, in gales of wind, and represent about 850 vessels per annum that have to run out of the different gateways without their usual anchors or cables, and frequently without any.

As an instance of the utility of a harbour of refuge, when it can be made available, the following facts are important:

The number of the fishing vessels of this port from 45 to 70 tons, carrying eleven hands each, and value, with nets, 1,400 £. each, are	-	-	-	-	-	-	-	-	-	-	150
Of smacks, of about 50 tons, carrying seven hands each, and value 700 £. each, are	-	-	-	-	-	-	-	-	-	-	70
The smaller fishing boats of from 10 to 26 tons, carrying six hands, and value 300 £. each, are	-	-	-	-	-	-	-	-	-	-	150
Stranger fishing vessels of from 30 to 40 tons, carrying eight hands, and valued about 500 £. each, are	-	-	-	-	-	-	-	-	-	-	250
TOTAL Fishing Vessels											620

of the burthen of about 20,000 tons, in which are employed about 5,000 hands at sea, and of the value of 400,000 £. and these are generally enabled to use the existing harbour as a refuge (which has 10 feet on its bar at low-water spring tides); and the loss of life and property amongst the fishing vessels is much less in comparison than amongst the shipping, although they fish during the worst time of the year, from the 1st of October to the end of December.

This freedom from loss is in a great measure due to their being able to use the present haven of Yarmouth as a refuge subsidiary to the roadstead.

The number of fishing boats and smacks that have run into the harbour for refuge in gales, are frequently from 100 to 200 sail at a tide.

The number of other ships that have run in for refuge during the last three years have been 549, of an average tonnage of 94 tons, as few large ships will at present attempt it.

Water-logged vessels have frequently to be beached, and vessels damaged on the coast, of large burthen, have to be taken to Harwich by the salvors, instead of being at once brought into a place of safety, near where they have been salvaged.

The inside of the haven has a sufficient depth of water to enable vessels to lie in perfect safety at all times of tide. It is large, being about two-and-a-half miles in length, and is a complete dock; but it is capable of great improvement, both internally and externally, at a comparatively small expense, and is of sufficient capacity to accommodate 800 sail of vessels, besides fishing craft.

The number and tonnage of vessels that have entered or cleared the harbour in cargoes, during the last three years, has been as follows:

	Numbers.	Tons.
1855	2,549	181,837
1856	2,545	185,298
1857	2,828	203,582

This harbour and the bar is at present sufficient for this trade.

The Government are possessed of an extensive naval hospital and arsenal in Great Yarmouth, but their utility and value would be greatly increased by any improvements that would enable transports and vessels of large burthen to land invalids and stores at these buildings without transshipment.

The Petitioners state that they are prepared to prove the above allegations before the Committee, if permitted to do so.

## Appendix, No. 6.

Appendix, No. 6.

LETTER from *John Coode, Esq.*, to Rear-Admiral *Mitford*, Chairman of the Committee formed for promoting the Construction of a HARBOUR of REFUGE in FILEY BAY.

Sir,

Weymouth, 31 March 1858.

THE Abstract of Wrecks and Casualties to Vessels on the Coasts of Great Britain, in the year 1857, having been published by the Board of Trade on Saturday last, I have examined it, in order to see how far the statistics therein given agree with the fact to which I first called attention in my report on Filey Bay, viz., that the wants of loaded colliers are far more urgent than those of colliers in ballast. A reference to the Board of Trade Abstract (*see* table 4, page 10), will show that the experience of last year more than confirms the view advanced in my report, for it appears that the wrecks and casualties to vessels laden with coals, in the year 1857, numbered 382, whilst those to colliers in ballast were only 62, or in the proportion of rather more than six of the former to one of the latter.

As all the inquiries made among the captains of vessels trading on this coast have gone to show that the great difficulties and detentions of the loaded colliers arise just to the northward of Flamborough Head, at the south end of Filey Bay; and as the experience of the past year (by proving how large is the proportion of loaded colliers requiring shelter) still further strengthens the claims of Filey Bay as the best site for a harbour of refuge, I have thought it right to acquaint you with the fact, shown by the statistics of wrecks for the year 1857, just published.

I am, &amp;c.

(signed) *John Coode.*

## Appendix, No. 7.

Appendix, No. 7.

LETTER from Captain *Washington, R. N.*, to *James Wilson, Esq., M. P.*, Chairman.

Sir,

Admiralty, 19 April 1857.

My attention having been called to the evidence I gave before the Select Committee on Refuge Harbours, on the subject of a Refuge Harbour in Seaford Bay, in answer to question 129 of the published evidence of 1857, viz.—

“Westward of Beachy Head, Seaford and Newhaven afford a very eligible spot; yet I could hardly recommend a large amount of public money to be expended on a harbour of refuge there. An improvement of the natural small harbour of Newhaven would be a great benefit indeed, and at a very small cost.”

The above being apparently at variance with the Report of the Harbour of Refuge Commission of 1845, of which I was a member, I may perhaps be permitted to state that this latter Commission, although nominally only on harbours of refuge, was really a commission on both refuge and defence, and under that view of the case, I am still of opinion that a large harbour in Seaford Bay would be useful; but especially useful would be the improvement of the small harbour of Newhaven, which could be done at a comparatively trifling cost.

I am, &amp;c.

(signed) *John Washington,*  
Hydrographer.



Appendix, No. 8.

Appendix, No. 8.

PAPER delivered in by *J. Abernethy, Esq., C.E.*, 12 April 1858.

HARBOUR OF REFUGE.

STATISTICS OF FRASERBURGH HARBOUR.

- 1. FRASERBURGH, originally called Faithlie, was erected into a free port and free burgh of barony and free regality, to be called in all time thereafter the “Burgh and Regality of Fraserburgh,” by charter from Queen Mary, dated 2d November 1546; and by another charter from King James 6, dated 4th April 1601.
- 2. The Harbour Commissioners are appointed by Act of Parliament, 2 & 3 Vict. c. 65, and 20 & 21 Vict. 1857.
- 3. The first pier was erected in 1745, the north pier was built in 1808, the south quay in 1818, the middle pier in 1830, and the new north pier in 1856-57.
- 4. Up to 1847 there had been expended on these works a sum of 25,702*l.* 4*s.* 7½*d.*
- 5. The expenditure at November 1857, incurred chiefly in the construction of the new north harbour, amounted to 50,099*l.* 11*s.* 9*d.*

See Appendix to Second Report of the Commissioners appointed to inquire into Tidal Harbours, p. 329. 5.

IMPORTS AND EXPORTS.

	Year 1837.	Year 1857.
I.—IMPORTED :		
Coals - - - - -	2,113 tons	3,887 ½ tons.
Bone-dust - - - - -	178 „	203 ½ „
Salt - - - - -	1,500 „	1,955 ½ „
Timber - - - - -	£. 4,503 value	£. 7,064 value.
Guano - - - - -	- none -	204 tons.
Cattle - - - - -	- none -	631 head.
Sheep - - - - -	- none -	21 „
Lime - - - - -	- none -	4,957 ½ bolls.
II.—EXPORTED :		
Grain - - - - -	10,050 quarters	19,049 ¾ quarters.
Potatoes - - - - -	950 tons	1,260 ¾ tons.
Herrings - - - - -	33,400 barrels	24,836 barrels.*

\* *N.B.*—The cause of the decrease of barrels in 1857 compared with 1837 is an unprecedentedly poor fishing, the number of boats being greater by 57.

## III.—TONNAGE OF FRASERBURGH:

	Year 1840.	Year 1857.	Tonnage of Peterhead: 1841, 77 ships; tonnage, 12,610. Ditto, 1858, 54 ships; tonnage, 10,000.
—			
Number of Vessels - - - - -	14	42	
Tonnage of ditto - - - - -	1,429	7,192	

## IV.—WINDBOUND VESSELS:

Number of windbound vessels during the last 10 years entering the harbour -	1,453	Extracted from the Harbour Books.
Tonnage of ditto - - - - -	80,302	

## V.—VESSELS ENTERING HARBOUR:

Number of vessels during the last 10 years, including windbound vessels -	4,702	Extracted from the Harbour Books.
Tonnage of ditto - - - - -	160,895	
Number of vessels during the last three years loading or discharging -	760	
Tonnage of ditto - - - - -	45,293	
Number of whalers belonging to Fraserburgh -	5	
Tonnage - - - - -	1,219	
Value of cargo in 1856 - - - -	£. 12,613. 17. 6.	

## VI.—VESSELS PASSING KINNAIRD HEAD in 1846:

Number taken from Captain Washington's report on loss of life, &c., in 1848 -	7,700	Captain W.'s Report, p. 44.
Tonnage - - - - -	1,000,000	

## VII.—HERRING TRADE:

Cured in 1856 - - - - -	44,215 barrels.
Caught, and not cured - - - - -	3,076 „
Cod - - - - -	3,927 cwt.
Cured in pickle - - - - -	512 barrels.

(Besides a large quantity of red herrings, of which no record is kept.)

Number of parties supposed to be employed - - - -	4,064.
---	--------

## Fraserburgh District:

Number of boats fishing at Fraserburgh in 1857 -	248
Ditto - - - - - Pitulie - ditto -	33
Ditto - - - - - Roseheart, ditto -	41
Ditto - - - - - Pennan - ditto -	9
Total - - - -	331
Number of boats fishing at Peterhead in 1857 -	232
Ditto - - - - - Boddom - ditto -	26
Total - - - -	258

N.B.—Fraserburgh boats are not safe to make the harbour at present until after two hours' flood.

## VIII.—WRECKS at FRASERBURGH:

Number occurring during the last 10 years - - - - -	26	Taken from Light-house Table.
Tonnage - - - - -	2,609	

Supposed value of cargo - - - - - £. 21,156.

## Appendix, No. 8.

## IX.—REVENUE :

£. s. d.

In 1797 the harbour revenue amounted to	-	-	-	-	-	45	-	-
Revenue in 1857	-	-	-	-	-	1,999	2	- $\frac{1}{2}$
Borrowing powers	-	-	-	-	-	40,000	-	-
Sum borrowed	-	-	-	-	-	18,560	-	-

## X.—PREVAILING GALES.

Taken from the  
Register at Kin-  
naird Head.

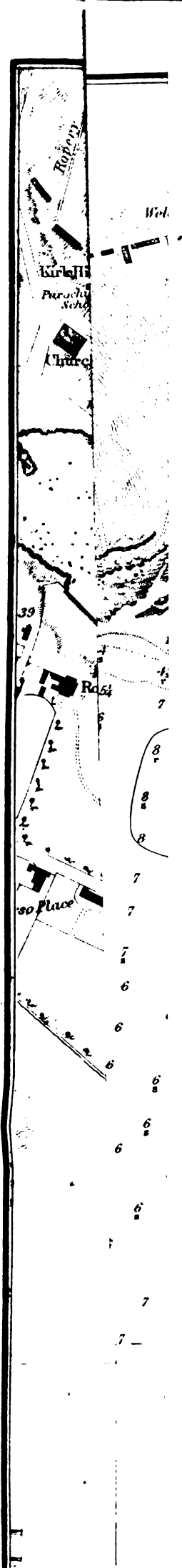
—	Southerly.	Northerly.	West.	East.	Other Quarters.
South - - - -	56				
South-west - - -	68				
South-east - - -	41				
West - - - -	-	-	69		
East - - - -	-	-	-	23	
North - - - -	-	19			
North-east - - -	-	20			
North-west - - -	-	14			
Other quarters - -	-	-	-	-	55
	165	53	69	23	55

365

Gales from south quarter	-	-	-	-	-	41
Gales from north quarter	-	-	-	-	-	23

## XI.—EXTENT of BAY:

Distance between Kinnaird Head and Cairnbulg Point in a straight line	-	2 miles.
Depth of bay	-	1 „



are caused by the waves in the opening will by contact be also more or less reflected, and not broken.

While at Wick, I endeavoured to ascertain the principal fishing ground, and after some assistance from Captain Tudor and others, I now place before the Committee a chart to show the

Appendix

Taken from  
Register of  
naird Hea

## Appendix, No. 9.

Appendix, No. 9.

LETTER from Captain *Vetch*, R. E., to *James Wilson*, Esq., M. P., Chairman.

Sir,

Admiralty, 14 April 1858.

IN reference to the evidence which I gave before the Select Committee of the House of Commons on the subject of harbours of refuge in July last, I beg to inform you that I took occasion, during a tour of inspection, to visit Wick Haven, with a view to refresh my memory on some particulars, and to obtain additional knowledge of the facts of the case.

I had the advantage of favourable weather, and the benefit of the company and assistance of Captain Tudor, R. N., the harbour master, in making my inspection, and of his opinions on the nautical points of the required shelter.

On the 10th of October, the weather being remarkably fine, we inspected the line of shore from the South Head to Wick Bridge, and from Wick Bridge to the North Head. We examined the quarry being worked near the South Head, and I found the quality of stone to exceed my expectations; it belongs to the middle series of the old red sandstone, as I learned from Sir Roderick Murchison, and is a hard, grey, shistose metamorphic rock, resting on beds nearly horizontal, and intersected by seams nearly at right angles to each other, and perpendicular to the base; and I observed one block 12 feet long by 8 feet wide, and 3  $\frac{1}{2}$  feet thick; so that, in fact, no better material, or circumstances attending it, could be desired; while the site is precisely that which could be desired. We observed some beds of limestone near the same site, but whether available for hydraulic purposes I had not the means of judging.

In my report on a harbour of refuge at Wick to the Admiralty, and in my examination by the Committee in the last Session of Parliament, I suggested two piers, one on the south shore and another on the north, as being the lines or piers suitable to enclose the smallest area of harbour which would be necessary, in my opinion, to effect the objects of an asylum harbour; and one of my objects in visiting the locality was, to select somewhat similar lines, embracing what may be considered the largest available space for a similar object, but limited, nevertheless, with regard to cost, and with regard to keeping the work in water not exceeding eight fathoms, and within safe limits of exposure to the weather; and after full consideration of these questions, we agreed that the blue lines L M and N O, shown on the accompanying Plan, would meet all reasonable and practicable requirements, and would not prove any very great additional expense; and that these lines might constitute the outer limits of any proposed harbour.

I have since again conferred with Captain Tudor on the subject, and find we are quite agreed on the lines, and as regards the entrance, as shown on the Plan.

The outer or blue lines would increase the low-water area by 51 acres, the area of two fathoms and upwards by 47 acres, and the area of three fathoms and upwards by 45 acres, which would much improve the harbour for the purposes of a naval station; and Captain Tudor pointed out a great superiority which the site of Wick possesses over that of Long Hope as a station for men-of-war, viz., that vessels at moorings at Long Hope would frequently be detained, by the velocity of the tide-currents through the Pentland (nine miles an hour), from proceeding to the North Sea; whereas at Wick there would be no such detention, while the guardianship of the Straits would be even more complete.

One objection taken to Wick Haven as a site for a harbour of refuge has been, that it might sand up, and no doubt, from the two-fathom line of sounding shown on the chart, it might be alleged that the sand travelled along shore to the head of the bay, where meeting the sand and gravel brought down by the river floods in winter, a great accumulation of matter has been caused; and at time of low water I observed rollers near the log buoy, where I learned the bed of sand was 16 feet thick; nevertheless, in comparing a chart of 1839 with observations of 1857, I see little or no variation in the depth, but were it otherwise, to remove the sand under present circumstances would be too costly, and never be effective, as the same causes would remain in action. If, however, the proposed piers were constructed, no more material would travel alongshore into the harbour, and the matter now encumbering the upper end of the harbour might then be dredged and deposited at sea, at little expense, and with no chance of again entering the harbour.

It was stated in Committee, that in strong easterly gales, rollers or breaking seas extended sometimes across the entrance of the Haven; and as this feature may be considered a difficulty of some importance, I consider it necessary to state, first, that when the piers have been run out from either side, leaving but an opening in the deepest water of only 500 feet, such an evil must cease; no wave in moderately deep water will break against a perpendicular cliff rock or pier; the wave will be reflected, but will not break, and if the sea now breaks in the centre, or deepest part of the harbour's mouth, that arises from the mere prolongation of the rollers created in the shoal water; but if the waves in shoal water are deflected and not broken, the wave in the opening will by contact be also more or less reflected, and not broken.

While at Wick, I endeavoured to ascertain the principal fishing ground, and after some assistance from Captain Tudor and others, I now place before the Committee a chart to show

Appendix, No. 9.

the route southward taken by the shoal of herrings from the north, across the mouth of the Pentland Firth, and the accumulation of the fish between Noss Head, north of Wick, and Clythness, south of Wick, and I learned that at Sarclet Head, between four and five miles south of Wick Haven, the accumulation of fish there is so great, that 15,000 boats are frequently fishing in one line perpendicular to the shore.

See Letter from  
Capt. Tudor.

There seems to be no possible doubt therefore, from these and other circumstances, that Wick lies in the very focus of the best fishing grounds, and which has been the means of drawing herring boats from distant places to this great point of attraction, and therefore creating the great trade of the port; but this aggregation of boats and trading vessels is left to great exposure in easterly gales, and frequent accidents occur; and there is this farther disadvantage for want of a safe asylum, that when the weather lowers, and appearances threaten, the boats are often prevented going to sea in the evening from fear of the results, and that in consequence of such appearances, and the want of a harbour in case of need, there is lost to the take of herrings a sum of about 10,000 *l.* per annum, and at Peel and Derby Haven, in the Isle of Man, which I visited last year, I learned that similar loss of opportunities to take fish arose from the want of a safe low-water shelter to run to in case of need; and I am led to believe in these cases, that the fishermen would be willing to pay 1 *l.* per annum each boat, to enable such asylum harbour to be made, nor is it simply the loss of trade and fish that is thus occasioned, but also the rearing of a hardy band of sailors, so important to the country in time of war.

I am, &c.  
(signed) *James Vetch*, Captain R. E.

LETTER from Commander *Tudor* to Captain *Vetch*, R. E.

My dear Captain Vetch,

Wick, 24 November 1857.

I BEG to forward the best information I can obtain on the subject of your letter from Withernsea of 15th November.

Our boats leave this in the evening, and there is an opinion that nets shot while the sun is up are not prolific.

On the point whether the landboard or seaboard fishing is the best, I find, after hearing numerous opinions, that the heaviest takes have been generally on shore, although we have had reports of vessels passing through heavy shoals of herrings, from 25 to 30 miles from the shore; this may be true, for our fishermen, not having a harbour they can take at all times of tide, do not often risk the distant fishing.

The ground most used, from my own observation during the time I have been here, is from 8 to 10 miles eastward of the bay, in from 30 to 40 fathoms, having either nothing or southing, as the tides may suit, for shooting the nets; and of course, in breezy weather, taking the wind blowing into consideration, as regards position for regaining the bay.

Herrings are often, on their first appearance on our east coast, taken as far north as Pentland Skerries; but the general fishings during the season are off that portion of the coast between Keiss (the northern part of Sinclair Bay) and the Ord of Caithness.

"Do the Banffshire boats come up to fish off Wick?"—They do, notwithstanding we are notoriously over-boated already here, which is, in my humble opinion, a sure test that the best fishing and spawning grounds are off this coast.

"What number of boats frequent the Caithness coast herring fishing?"—From the bay and ports of Wick and Pulteney Town about 1,100; but taking into account the minor places between Keiss and the Ord of Caithness, Mr. Mackie's ("Northern Ensign") account of 1,700 is about the mark.

Decked vessels that have used the Harbours and Bay of Wick, exclusive of herring boats—

1854	-	Vessels	-	977	-	-	Tonnage about	86,000
1855	-	"	-	878	-	-	"	84,400
1856	-	"	-	845	-	-	"	73,900

I shall be happy to be of any further service I can.

I am, &c.  
(signed) *John Tudor*,  
Commander.

To Bengore Head E.  $\frac{3}{4}$  S.  $1\frac{1}{2}$  Miles

111

98

77





## Appendix, No. 10.

Appendix, No. 10.

**REMARKS on the SKERRIES near Port Rush, as to the Facilities they afford for forming a HARBOUR of REFUGE.**

THE Skerrie islets on the coast of Antrim form a chain of one-and-a-half miles in length and are nearly parallel to the shore, from which they are one mile distant. The eastern islets afford fair shelter to a few small vessels in moderate weather; the holding ground, however, is not good, being for the most part sand and stones; these islets are separated from the western group by a sound 528 yards in width, having a depth of 13 fathoms, through which a heavy sea runs into the anchorage. The proposition appears to be to fill in this Sound with the lesser openings, so as to form the whole chain of rocks into a continuous breakwater one-and-a-half miles in length, leaving the Channel between Rawmore Head and the Western Rocks still open; and in this way I have no doubt that a good roadstead would be obtained, exposed, however, to easterly winds; but which do not bring home much sea. Being easy of access, this anchorage is much frequented by coasters, and would be still more valuable to them if the islands were connected.

An isolated breakwater would not confer much benefit on this immediate locality, where from the silting up of Port Rush Harbour, a closed harbour for commercial purposes is much required, while from its proximity to the fine natural harbour of Lough Foyle, the necessity for a mere harbour of refuge is not much felt. I think, therefore, that in contemplating any works here, it will be important to consider how the trade of the locality may be benefited, without impairing their value for purposes of refuge.

If the Sound between Ramore Head and the western rocks were filled in, it would in a great degree meet the requirements of the place, and greatly facilitate the construction of the outer breakwater between the islands, the materials for which must otherwise be transported in lighters, staging being, I suppose, impracticable with the heavy sea and strong tide that prevails here. There are, however, two objections to this course; the first is, that to the influence of the tide through this Sound, the deep water in the road is mainly owing; and the second is, the freedom of access it affords to the anchorage; and I think these are of sufficient weight to prevent our contemplating the closing of this Sound.

To give the locality the advantage of a commercial port in connexion with the refuge harbour, it will, therefore, be necessary to construct other works on the main land, and I would beg to recommend a pier on the east side of Rawmore Head, as shown on the tracing, which will shelter vessels from the effects of the easterly winds as well as from the heavy sea through the west channel. This pier being farther removed from the sandy shore at the bottom of the bay, and the heavy stroke of the wave being broken by the breakwater and western rocks, it will not be so liable to have sand forced into it, or to suffer so much from the heavy ground swell, as the little harbour on the west side of the Peninsula, and may be expected to answer all the purposes of a shipping port, and give increased value to the refuge harbour from the facility it may afford for communicating with vessels seeking shelter there.

From the geographical position of these islands, they would, if connected by a breakwater, become a convenient station in time of war for a squadron watching the entrance of the north channel, and the proposed pier would afford facilities for coaling steamers of moderate draught, while large ships, it is presumed, might always complete in the roads.

The trap rock of Rawmore Head seems well adapted to the construction of the proposed works, but the supply would be limited; an abundance of material may, however, be obtained within an easy distance, but the islands would not furnish enough for the breakwater, neither would it be desirable to deprive the anchorage of the shelter they afford.

Warrenpoint,  
9 December 1857.

(signed) *R. Hoskyn*, Master,  
Admiralty Surveyor.

Appendix, No. 11.

Appendix, No. 11.

LETTER from *MacLeod of MacLeod* to *James Wilson*, Esq., Chairman, enclosing REPORT from *J. M. Rendel*, Esq., on the subject of converting WICK BAY into a HARBOUR of REFUGE.

9, Cambridge Square, Hyde Park,  
15 March 1858.

Sir,

At the request of the Board of Directors of the British Fishery Society, I beg to forward to you the copy of a report made to them by the late eminent engineer, Mr. Rendel, in the year 1853, on the subject of converting Wick Bay into a Harbour of Refuge, and likewise a copy of the plan which accompanied his report. I am at the same time desirous to request that these documents may be published with this letter in the Appendix to the Report of the Committee on Harbours now sitting, of which you are Chairman.

The directors having for many years given their anxious attention to this question, and believing it to be one of great public importance, are desirous of taking this means of placing Mr. Rendel's plan and report on record, and they trust that the Committee will permit them to be printed with the other information they are collecting on the subject.

It would have been the duty of the British Fishery Society as a public body, associated not for purposes of profit, but with a view to the promotion of industry along the seaboard of Scotland, to tender evidence before your Committee of the unquestionable superiority of the position of Wick for a great harbour of refuge, had that fact not been already sufficiently established by the testimony of the eminent public officers connected with the Admiralty and Board of Trade who have been examined. The society could not have improved on their evidence, and have therefore abstained from proposing to occupy the time of the Committee by adding to it.

The British Fishery Society obtained powers last year from Parliament for the enlargement of their present fishing harbours in the Bay of Wick. The extent of this work was restricted by the means at the command of the society. There can be no doubt of the superiority of the more extended plan suggested by Mr. Rendel. All proceedings, therefore, by the society in reference to their own fishing harbour are suspended until it is known what course Parliament may take.

James Wilson, Esq.

I am, &c.  
(signed) *MacLeod of MacLeod*.

#### WICK HARBOUR.

8, Great George-street, Westminster,  
28 May 1853.

Sir,

THOUGH nearly 12 months have elapsed since I received, through Mr. Lock, the instructions of "the Governor, Deputy-governor, and Directors of the British Fishery Society," to submit a design for a harbour of refuge in Wick Bay, it must not be inferred that such lapse of time is evidence of any neglect on my part of those instructions, or that after investigation I thought the subject undeserving the great interest taken in it by the society.

It was not until August last that I was enabled to take so distant a journey. In the course of that month, however, I made a careful examination of the bay and of the adjoining coasts and harbours, and from that time to the present I have given to the inquiry every interval which my other equally pressing engagements have permitted.

The Bay of Wick is unquestionably the most complete natural deep-water harbour on the eastern seaboard of Scotland, north of Cromarty Frith.

This advantage, coupled with its being but two hours' run from the Pentland Frith, has not only pointed it out as a suitable site for a harbour of refuge for vessels navigating the North Sea, but has for years constituted it the chief fishing station of the coast, and has drawn to its shores a large and most industrious population.

In regard to these fisheries it is impossible to over-estimate their national as well as local importance. The coasts of the Pentland and Moray Friths comprise 10 or 12 fishing stations, and these alone employ an aggregate fleet of about 3,000 boats, carrying upwards of 15,000 men and boys.

The lamentable loss of life and property which occurs in these fisheries is universally admitted to be due to the insufficiency of the harbours on the coast. These harbours, which are necessarily numerous, are, with but two exceptions, small for the number of boats resorting to them, dry at low water, and very liable at high water to a heavy in-run of sea.

During fine weather and off-shore winds these defects are not much felt; but as the coast is liable to violent southerly and south-easterly gales, they then not only add to the risks of

the

the boats by keeping them at sea till nearly high water, but, from the time that will allow of admittance being limited to a few hours of each tide, they occasion a great crowding at the entrances. The boats then become entangled, confusion ensues, and frightful wrecks, such as occurred in August 1848, are the necessary result.

Fortunately for the life and property employed, gales such as that above alluded to do not often happen. It is however a painful fact that almost yearly losses differing only in degree do occur from the like causes; and that much as the Government, the society, the landed proprietors, and enterprising individuals on the coast have done in the formation and support of these fisheries, they must be limited in their success, whilst wanting the requisite harbour accommodation to afford the boats protection when overtaken by such gales.

To secure this most desirable object it is not necessary to undertake the improvement of each of the numerous harbours now resorted to, or to interfere with that general distribution along the coast which seems to be necessary for the proper conduct of the fisheries. What, however, in my judgment is absolutely wanted, is one or two good harbours of refuge to which the boats might at all times safely run when unable to remain at sea, or to attempt to make their accustomed port without danger.

Wick is about 30 miles north-north-west from the centre of the fishery grounds, whilst the admirable natural harbour of Cromarty is about 40 miles from the same point bearing west-south-west; consequently these harbours may be made to afford complete refuge to the boats belonging to the numerous small and dangerous harbours scattered along the coast of Caithness, Sutherland, Ross, Nairn, Elgin, Banff, and Aberdeenshire, as far east as Kinaird's Head, a seaboard of upwards of 200 miles.

As a harbour of refuge for vessels navigating the North Sea, Wick is also admirably placed. Its position is well-defined by lights and "land falls," and it stands on a prominent part of the coast. There is no other refuge between Cromarty on the south, and Long Hope on the north, and it is situated in the most exposed and dangerous part of about 100 miles of intervening coast.

Wick is also well suited as a port of call, whilst to vessels detained by westerly winds from getting through the Pentland Frith, its value, when made a safe anchorage, would be very great.

To convert Wick Bay into a commodious harbour of refuge, adapted to the general shipping resorting to the North Sea, as well as to the wants of the steam trade, coasters, and fishing boats, it will be necessary to appropriate the entire bay.

Within its headlands, namely, Wick Head on the North, and Pulteney Town Head on the South, the area of the bay at low water is about 210 imperial acres, of which 150 acres give a depth of two fathoms and upwards, 117 acres give a depth of four fathoms and upwards, 82 acres give a depth of six fathoms and upwards, 74 acres give a depth of from six to nine fathoms. Of these areas, only about one-half could be completely sheltered without making the entrance difficult, or greatly adding to the otherwise large expense of the requisite works; and hence, to get the necessary area of deep water adequately sheltered, the works must be kept as far seaward as the headlands will permit.

By a reference to the accompanying design, it will be seen that I propose to run off a breakwater from the south or Pulteney Town Headland in a north-north-east half east direction for a length of 2,200 feet, measuring from the rocks at low water; casting its head in a north-westerly direction for a length of from 300 to 500 feet as in the progress of the work should appear to be necessary.

From the Head of Wick I also propose to run off a breakwater, with its head resting on Proudfoot Rock. This work would be 1,000 feet long, and built on the rocks, which are left dry at low water. The distance between the heads of these two breakwaters would be 1,200 feet, measuring on an east-north-east and a west-north-west line, thus giving a south-south-east aspect to the entrance.

By this arrangement the head of the great breakwater would bear east, and the head of the small breakwater east-by-north from the lighthouse of Pulteney Town Harbour, being distant from that point respectively about 1,000 and 1,400 yards.

It will therefore be seen that not only will the present harbour of Pulteney Town be protected by the great breakwater from all gales between south and east, as well as the heavy in-run of sea due to them, but that this advantage will be extended to the southern half of the whole bay. Again, it will be equally clear that the north breakwater will exclude the sea due to all gales from the north to east-north-east from the north or Wick side of the bay, whilst their united effect will be to give at all times complete shelter and quiet to that portion of the bay, south of a line drawn from about the Salmon Rock to the head of the great breakwater, a space of 56 acres of admirable anchorage ground having from four to eight fathoms of water.

Nor will this shelter be obtained by closing up the mouth of Wick Bay so as to make it difficult of ingress or egress. The north breakwater, by making a dangerous point of rocks, submerged at high water, will obviously be attended with indirect as well as direct advantages, whilst, notwithstanding that the south breakwater extends two-thirds of the distance across the mouth of the bay, the portion left as an entrance is of such width and aspect as to permit a vessel to run in free with any wind between north and south round by east; whilst there would be no difficulty in working in even a crippled and short-handed vessel in a dead off-shore or north-westerly gale.

To prevent as much as possible a heavy range of sea across the entrance, it may be found necessary to run off a jetty on the sea side of the great breakwater, and also to remove the rocks under the north breakwater, where coloured red on the Plan.

## Appendix, No. 11.

Of course the head of each breakwater would be lighted, and properly protected with a sheltering parapet. The mode I should propose for constructing the great breakwater would be the same as that I have adopted at Portland and Holyhead, excepting that some alterations would be necessary in this case to suit the peculiar character of the stone.

The north breakwater I propose to construct as an ordinary pier, adapting its strength, however, to its very exposed situation.

I have caused estimates to be prepared of the probable cost of these two breakwaters, and find the amount to be as follows :

ESTIMATE.										£.
South, or Great Breakwater	-	-	-	-	-	-	-	-	-	235,000
North Breakwater, including removal of rocks	-	-	-	-	-	-	-	-	-	20,600
TOTAL										£. 255,000

It is assumed in this estimate that no charge is to be made for land for quarries, and that the works are conducted so that their risk should not be increased by unnecessary delays ; whilst, on the other hand, sufficient time shall be allowed for the proper consolidation of each part of the work as it progresses.

As some persons seem to entertain the opinion that Wick Bay is shoaling, and that the tendency to deposit would increase within any portion inclosed as a harbour, I would observe, that the effect of the plan now proposed would, on the contrary, be to diminish that tendency ; for since the two breakwaters would exclude the violent seas which now roll in, after sweeping the adjoining shores, the sands and other debris which they carry would no longer find admission, or if some portion should enter, it would be lost in the great depth at the entrance, and along the line of the breakwater.

As to any danger of silt to an extent that would injure a harbour of such magnitude from a stream like the water of Wick, I can say with confidence that there would not be the smallest ground for apprehension.

I have now to offer a design for a harbour, limited in its object, to an extension of the accommodation afforded by the present harbour.

This part of my instructions was not so definite as the other ; but I understand them to require that, after considering the various reports and plans of Mr. Gibb in 1838 and 1842, of Mr. Bremner in 1844 and 1845, of Messrs. Stevenson in 1846 and 1847, and of Professor Gordon in 1847, I should state what plan appears to me most eligible for the improvement of the present harbour, supposing the want of means or other causes should prevent the larger plan for a refuge harbour being executed.

On the sheet of drawing showing the design for the refuge harbour, I have also laid down the result of my investigations under this branch of my instructions. The design is so arranged as to admit of completion by steps, each step providing accommodation useful in itself, and necessary as a preliminary to that which is to succeed it.

It will be seen that, like those of most of the other engineers before referred to, my design comprises a pier run off from the Salmon Rock in a northerly direction, and that in its other features it most resembles Mr. Bremner's and Messrs. Stevenson's plan, by entirely inclosing the southern portion or sheltered space by a pier run off from the present pier head in an easterly direction. The progress of this design would be as follows :

1st. The construction of the first 700 feet of the Salmon Rock Pier ; this would shelter about six acres of the bay, varying in depth from 10 to 12 feet, and constituting a safe anchorage for fishing boats and small coasters. It would also give convenient low-water wharfage at the piers for vessels up to 250 tons burthen, as also for all coasting steamers likely to resort to the port.

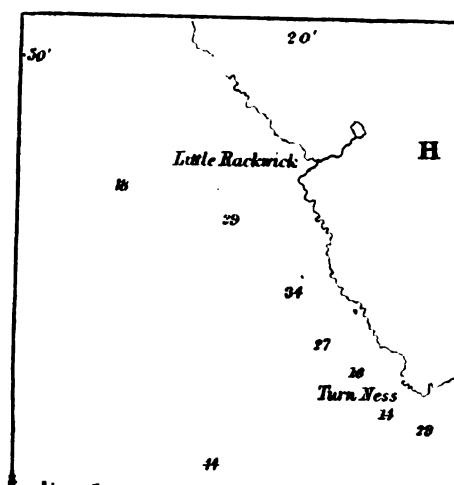
2d. The construction of the east and west piers, and the formation of the necessary wharfs for converting the inclosed space into a low-water boat harbour of 10 acres area.

3d. The extension of the Salmon Rock Pier an additional 400 feet in from 16 to 18 feet water at low-water, and the opening a communication between the old and new harbours by breaking a passage through the old north and south pier.

By these final works not only would the entrance to the new harbour be completely covered from all the dangerous seas rolling into the bay, and the advantages of this be made available to the old harbour as well as the new one, but very complete pier accommodation for steam traders would be provided outside the new harbour.

I have gone with much care into the probable cost of these works, and the following is the result :—

ESTIMATE.										£.
For the first step	-	-	-	-	-	-	-	-	-	30,000
For the second step	-	-	-	-	-	-	-	-	-	35,200
For the third step	-	-	-	-	-	-	-	-	-	18,600
TOTAL										£. 83,800



— 1896 —

In preparing these estimates also, I have assumed that the stone will be got from the Pulteney Town Estate free of charge. Appendix, No. 11.

That a harbour formed on this design, or indeed any modification of it, will be much more liable to sand and silt than the larger one first described, will be obvious, since it does not, like that, exclude the roll of the sea into the bay, and the consequent transmission of sand; but I am of opinion that, with the exception of the Salmon Rock Pier Head, where there is now 14 feet of water, such silting will be, if at all, very slow, and in all parts the present depth may be maintained by a small yearly expenditure in dredging. I should add, that the rate of silting or sanding in this new harbour must not be compared with what takes place in the present harbour, its entrance being double the distance from low water, and having a depth of 15 feet instead of two feet, and consequently being comparatively out of reach of the broken sea, which, in its recoil from the beach, takes up large quantities of sand, portions of which the next wave carries into the present harbour.

In conclusion, I would draw attention to one most fruitful cause, now in operation, of the liability to silting up observed in the present harbour—I allude to the common practice, on each shore of the bay where quarries are worked, of casting the debris within the reach of the sea; the consequence is, that the debris is carried along the shores; and, after gorging the natural groins formed by the jutting reefs of rock, is cast up on the beach west of the old harbour entrance, and there ground into a material which is easily transported into the harbour, as well as the higher and more sheltered parts of the bay.

To this practice a stop should at once be put.

I beg to return herewith the several reports and sheet of designs forwarded to me with my instructions.

And have, &c.

Samuel Smith, Esq., &c. &c. &c.  
Whitehall.

(signed) *James M. Rendel.*

### Appendix, No. 12.

LETTER from *R. Ward Jackson, Esq.*, to Lord *Adolphus Vane Tempest, M.P.*

Greatham Hall, West Hartlepool,  
8 May 1858.

My Lord,

HAVING obtained a copy of the Abstract of the Returns of Wrecks and Casualties on the Coasts of the United Kingdom in the year 1857, I take the liberty of offering to you, as a Member of the Select Committee on Refuge Harbours, a few observations which occur to me on examining the work. Appendix, No. 12.

It appears (by Table 6, page 11) that, during the year 1857, the casualties on the East Coast, from Dungeness to Pentland Firth inclusive, exceed those in the previous year 1856 by 94, the number being 506 in 1856, and 600 in 1857.

Of the total number of casualties, reported to amount to 1,148, in the year 1857, there were (according to Table 4, page 10) 62 to colliers in ballast and 382 to laden colliers, showing that more than one-third of the whole casualties occurs to vessels engaged in the coal trade.

But it is to be regretted that the returns do not give, under a separate Table, the casualties to colliers on each of the coasts, so that it might at once be seen what proportion belongs to the Durnam and Northumberland coal ports, as distinguished from those in the Bristol Channel and the whole of the west coast, including the Clyde.

It is shown that, of the "principal wrecks, with the number of lives lost in each case" (Table 17, page 17), the most severe on the east coast have occurred within the embayment between Robin Hood's Bay (north of Scarborough), and Newbiggin (to the north of the Tyne), there having been 11 total wrecks, in which 74 lives were lost within that 60 miles of sea coast, and none similarly reported between Flamborough Head and Robin Hood's Bay.

Of the above 11 total wrecks and loss of 74 lives, no less than six of such wrecks, with 48 lives lost, occurred in Tees and Hartlepool Bay.



Appendix, No. 12. Exhibited also on the wreck chart, annexed to the returns for 1857, are the following facts:—

Reference Marks on the Wreck Chart - - }	Total Loss by Stranding or Foundering.	Partial Loss.	Sailing Vessels in Collision with each other.		Sailing Vessels in Collision with Steam Vessels,	
	●	×	Total Loss.	Partial Loss.	Total Loss.	Partial Loss.
Off Flamborough Head and Bridlington Bay - - }	7	10	- -	2	- -	2
Off Filey Bay - - -	1	3	—	—	—	—
From Filey Bay (northward) to Hartlepool Bay, 40 miles }	44	29	2	13	—	—
From Hartlepool Bay to New- biggin, 35 miles - - }	22	35	- -	4	- -	2

I am, &c.  
(signed) *R. Ward Jackson.*

The Lord Adolphus Vane Tempest, M.P.  
&c. &c. &c.

### Appendix, No. 13.

COPY of REPORTS received at the War Office, or Horse Guards, relative to the great Facilities afforded by the HARBOUR of *Waterford* for landing and embarking Troops.

Appendix, No. 13.

Quartermaster General's Office, Dublin's Hotel,  
Waterford, 31 December 1857.

Sir,

I HAVE the honour to report the arrival, this day, at about 5.30 A.M., of the steamer "Adonis" and "Dutchman," from Portsmouth, with the 1st Surrey Militia.

The regiment disembarked at the Quay, Waterford, most admirably, was mustered, and marched to the Railway, proceeding by special train, at 12 noon, to Clonmel and Cahir, to which latter station it became desirable to detach 130 men, the numbers being too large for Clonmel.

The Wexford Militia arrived from Clonmel at 4 P.M. by train, were marched to the Quay, and embarked in the "Adonis" and "Dutchman;" the embarkation was conducted well.

I cannot close this report without stating the great facilities Waterford possesses as a port for the embarkation and disembarkation of troops; nor ought I to omit to add, for his Royal Highness the General Commanding-in-Chief's information, that the service is much indebted to Lieut.-Colonel Sir J. G. Butler for the prompt manner in which he complied with the requisitions for fatigue parties, and the energy with which the South Devon worked when thus employed.

The "Adonis" and "Dutchman" sailed for Bristol at a quarter to six P.M. this day.

Disembarkation and embarkation returns are enclosed.

I have, &c.  
(signed) *Arthur R. Pack*, Lieut.-Colonel,  
Acting Quartermaster General, Cork Division.

Commander of the Forces Office, Royal Hospital,      Appendix, No. 13.  
Dublin, 12 January 1858.

Sir,

WITH reference to your letter of the 2d instant, requesting my observations relative to Waterford as a port of embarkation, I have the honour to state, for the information of his Royal Highness the General Commanding-in-Chief, that most of the garrison towns in the Curragh and Cork Divisions being conveniently connected by rail with Waterford, the embarkation of regiments direct from these stations, intended to be conveyed in coasting steamers to the West of England, would be greatly facilitated by the quays at that port, and effected more conveniently than from Queenstown, where troops cannot be embarked or disembarked without the assistance of small steam vessels. The naval authorities, however, might prefer Cork, under all circumstances, as a port of embarkation for foreign service.

The Quartermaster General,  
Horse Guards.

I have, &c.  
(signed)      Seaton, General.

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War Office, }  
4 June 1858. }

J. PEEL.

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**SUPPLEMENTAL APPENDIX**

**AND**

**I N D E X**

**TO THE**

**R E P O R T**

**FROM THE**

**SELECT COMMITTEE**

**ON**

**H A R B O U R S O F R E F U G E .**

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*Ordered, by The House of Commons, to be Printed,*  
*17 June 1858.*

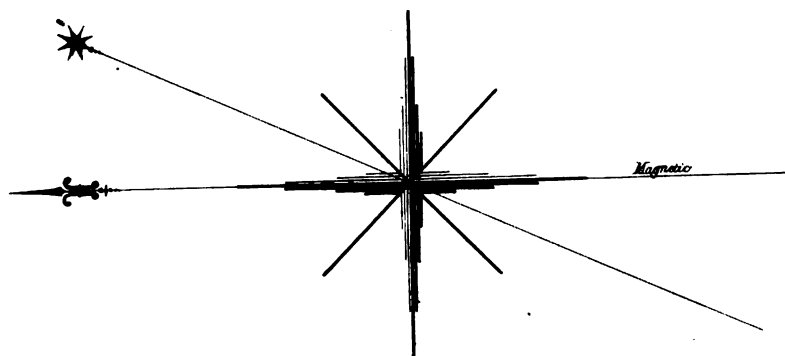
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SUPPLEMENTAL APPENDIX (with PLAN)	- - - -	p. 3
PLAN of ST. IVES BAY, and proposed WORKS, to illus- trate the <del>REPORT</del> of Captain <i>James Vetch</i> , R. E.	- - - } (end of App.)	
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# SUPPLEMENTAL APPENDIX.

## Appendix, No. 14.

### PROPOSED HARBOUR OF REFUGE IN FILEY BAY.

MR. COODE'S REPORT.—January 1858.

To the CHAIRMAN and COMMITTEE formed for Promoting the Construction of a HARBOUR of REFUGE in *Filey Bay*.

Gentlemen,

Weymouth, 18 January 1858.

HAVING been requested to examine *Filey Bay*, and to report my opinion as to its eligibility for the formation of a harbour of refuge, I beg to inform you that I made a close personal examination of the bay in the month of October last, and, at the same time, caused a survey and levels to be taken of "*Filey Brigg*" and the adjoining cliffs. Having framed a design for the construction of a breakwater, I again visited *Filey* in December, and finding my previous views fully confirmed by a second inspection, I have laid down this design, in red colour, on the accompanying chart, which I have now to submit, with the following Report on the subject. Introductory.

It will not be necessary to dwell upon the great and pressing demand for the formation of a harbour of refuge on the north-east coast of England; the subject has occupied the attention of Parliament at different periods, extending over at least the last 20 years, and it seems now to be admitted on all hands that the execution of such a work should not be longer postponed. Among the results of the labours of a Select Committee of the House of Commons on Harbours of Refuge, appointed in the last Session of Parliament, it is to be hoped that some adequate protection will be provided for the great number of vessels engaged on that part of the coast just referred to.

Captain Washington, the Hydrographer of the Navy, whose interest in the preservation of life and property from shipwreck is so well known, has caused a chart to be prepared, showing all the wrecks and casualties on the coast of Great Britain and Ireland for five years, from 1852 to 1856, both inclusive. This chart is full of instruction and of melancholy interest; a cursory inspection of it will serve to show how urgent is the case, as regards the north-eastern coast of England. Vide Chart No. 1, Report of Select Committee of the House of Commons on Harbours of Refuge; No. 262, August, 1857.

Without further preface, I will merely remark, that I propose to direct your attention in the first place to the very favourable geographical position of *Filey Bay*, with the great natural advantages which it possesses,\* and the facilities there afforded for the formation of a harbour of refuge; and then to describe the nature, extent, and beneficial effect of the works which I have to suggest.

First, then, as to geographical position:—

*Filey Bay* is just midway between the Firth of Forth and the Thames; the importance of this position will be seen by referring to the opening passage of the Report of a Select Committee of the House of Commons, appointed in the year 1836, "to inquire into the alleged deficiency of protection for ships on the north-eastern coast of England," and for other subjects connected with harbours of refuge. The first resolution reported by this Committee was as follows:— Advantageous geographical position of *Filey Bay*.

"1st. That it appears to your Committee, that from the Firth of Forth to the mouth of the Thames there is no harbour which, in the strict acceptation of the term, can be called a harbour of refuge; that all are tidal harbours, and only accessible at certain times of the tide."

This Vide Report of Select Committee of the House of Commons on Harbours of Refuge; Session 1836, No. 334.

\* It seems to be generally admitted that *Filey Bay* was the ancient "*Portus Felix*," or "*Sinus Salutaris*," of the Romans, "and formerly frequently anchored a fleet of Roman gallees." See Paper in the *Archæologia of the Society of Antiquaries*, vol. 26, p. 127.

This description of the harbours along the eastern coast, although written upwards of 20 years since, will apply with equal force to the state of things existing at the present day.

The same Committee also reported, that "Redcar, near the mouth of the Tees," was a site "where nature appears to have done a great deal towards the formation of a very convenient and capacious harbour;" also that "a spot a little further south than Scarborough, called 'Feby' (Filey) 'Bay,' afforded great facilities for the same purpose."

In the year 1851, 15 years subsequent to the date of the above-named Report, upon application being made to Parliament for powers to construct a harbour of refuge and docks at Redcar, the case of the promoters was referred to Mr. David Stevenson, C. E.; and the last clause of his Report on the subject, dated 15th February 1851, runs as follows:

*Vide Parliamentary Paper, printed by order of the House of Commons; Session 1851, No. 390.*

"That in consequence of the discrepancies which exist between the Admiralty Survey and the plan of the promoters, it will be most desirable that the facts, as to the soundings and nature of the bottom, were put beyond all question by actual survey, before a final decision in the case be pronounced."

*Vide Parliamentary Paper; Session 1851, No. 390.*

Mr. E. K. Calver, R. N., an able and experienced marine surveyor, being appointed to make a special survey of Redcar, in April 1851, reported to the late Sir Francis Beaufort, then hydrographer to the Admiralty, that he found the "Parliamentary plan of the promoters to be inaccurate in several particulars," and added, in the concluding sentence of his Report, that "for such a harbour as that now before Parliament, Redcar does not afford an available site." So far as I am aware, no further steps appear to have been taken in favour of Redcar since that time; nor is it probable, after the careful examination and survey of Mr. Calver, that the idea of forming there such a harbour as is demanded by the necessities of this part of the coast will be seriously entertained.

*Vide Report of Select Committee of the House of Commons, 1836, No. 334.*

Much valuable evidence in favour of Filey Bay as a site for a harbour of refuge was given before the Committee of 1836, by Captain W. Hewitt, R. N., whose opinion was the more valuable from the circumstance of his having, for several years prior to that time, been occupied in surveying the coast of the North Sea generally, but more especially from the river Tees to Lowestoft. Since that date the claims of Filey Bay seem to have been entirely lost sight of, and I do not find that Filey was even once alluded to in the Evidence given before the Select Committee on Harbours of Refuge, in the last Session of Parliament. The opinions I shall hereafter have to express as to the great and peculiar advantages and capabilities of Filey Bay are such as to induce me to believe that you will at once decide upon bringing them before the attention of the Committee, when they shall meet to resume their labours, in the Session now so soon to open. To show you that the claims of Filey are not based upon light grounds, I cannot do better than refer you to the following opinion, expressed by no less an authority than Captain Washington, in the year 1846: "When the Government shall be at liberty to attend to the wants of sailors on this part of the coast, which sooner or later must be done, Filey Bay will deserve attentive consideration."

*Vide Report of Tidal Harbours Commissioners, 1846, Appendix B.*

*Position of Filey Bay, with reference to coal ports.*

Returning to the question of the geographical position of Filey Bay, I would remark that it is mainly as regards its situation with reference to the several coal ports that its advantages in this respect become most apparent.

*Vide Report of Select Committee of the House of Commons on Harbours of Refuge; No. 262, August 1857. Answer 1050.*

It appears by the evidence of Captain B. J. Sullivan, R. N., naval member of the Board of Trade, as given before the Select Committee of the House of Commons on Harbours, last Session, that the five ports of Newcastle, Shields, Sunderland, Hartlepool, and Stockton, export no less than "3,733,000 tons" annually, "being nearly half of the whole coasting trade of England, and this part of the coast, including those ports," is only one thirty-sixth part of the whole coast of England.

*Answer 1061.*

It is further stated in Captain Sullivan's evidence, that two-thirds of the number of vessels totally lost on the east coast of England are wrecked between Flamborough Head and Fern Islands; the returns up to the date of his evidence, or for the first six months of the year 1857, showing that on this small extent of coast alone, and within the short space of six months, no less than 56 vessels were totally lost, and 81 damaged.

*Relative proportions of wrecks and casualties to colliers "laden" and in "ballast."*

It was also given in evidence that London alone receives annually about 2,000,000 tons of coal coastwise from the north; there can be no question, therefore, that at least three-fourths of the whole of the traffic from the several coal ports is conveyed along the coast to the various places lying south of these ports, and to the London market. Bearing in mind these facts as to the direction of the coal traffic, and as to the positions where the wrecks for the most part occur, and referring to the last published official statement of the Board of Trade, showing the wrecks and casualties for 1856, we find that the wrecks and casualties happening to vessels "laden with coal" were 314, whilst those to "colliers in ballast" were 79, or, as nearly as possible, four of the former to one of the latter. This is a most important fact, and, being contrary to what I believe to be the generally received opinion as to the proportionate losses and casualties of the two classes of vessels, it is a fact to which I would beg to direct special attention, because it shows, in an unmistakeable manner, the necessity of providing a harbour to the southward of all the coal ports, inasmuch as it is required for vessels "laden with coals" and bound to the south, rather than for those "in ballast," bound for the north to load, as is fully proved by the statistics published by the Board of Trade, before referred to.

*Vide Abstract of the Returns to the Board of Trade, of Wrecks and Casualties for 1856. Table 4, page 8.*

Now,

Now, as Filey Bay is north of Flamborough Head, and south of all the coal ports, it fulfils these essential conditions; and in confirmation of the views here advanced as to the importance of its position, it may be stated, that large numbers of vessels laden with coals, and bound to the southward, are very frequently detained off Flamborough Head by southerly winds. Under such circumstances, the vessels will constantly run in and bring up in the south part of Filey Bay, off Speeton and Bempton Cliffs, and under the lee of Flamborough Head, where they will not uncommonly lay for a week, exposed to the danger of a shift of wind to the eastward, rather than put back to any of the ports to the north. No longer since than the 8th of last month, there were at one time not less than 240 vessels so anchored in the south part of Filey Bay, and for a period of three weeks subsequent to that date there were not many days when less than 50 vessels were riding at anchor there.\*

In the absence of any shelter from easterly gales in the vicinity of Flamborough Head, vessels are compelled to run back for some one of the ports to the northward, not only incurring great danger in so running back, but still greater danger in attempting to get in, because these possess "none of the proper features of a refuge harbour, and can only be termed dangerous decoys." I quote here the description in the Report of Mr. E. K. Calver, R.N., as given in the Appendix to the Evidence before the Committee of the House of Commons on Harbours of Refuge, 1857. Whilst referring to Mr. Calver's Report, and the chart which elucidates it, I would remark, that I consider the "Line of Embayment" drawn from Fern Islands, should have taken to Flamborough Head, instead of the North Cheek of Robin Hood's Bay, and I would further observe (bearing in mind the results shown by Table 4 of the Wreck Returns) that as the loaded vessels would not, as a matter of course, leave their ports in the face of a gale of wind, there can be no doubt whatever that the wrecks in Tees Bay do not arise so much from the vessels being unavoidably embayed as from their being "induced to run to leeward, hoping to get into the harbours; whereas, if they did not exist, they would keep the offing, and sail to the Firth of Forth, or the Humber." The fact that vessels do so run to leeward to endeavour to get into these harbours (notwithstanding the sad results of experience) must be taken as one of the strongest proofs of the want of a proper harbour of refuge on this part of the coast.

*Vide Report, Session 1857, No. 262. Appendix, No. 1, page 247.*

*Vide Report, Session 1857, No. 262. Chart, No. 2.*

*Vide Mr. Calver's Evidence; Report Session 1857 No. 262. Answer 2322*

Another important feature in favour of Filey as a site for a harbour is this, that inasmuch as all masters of vessels, knowing they will have to weather Flamborough Head, must of necessity keep the offing, so that, with an on-shore gale on this part of the coast, Filey Bay would always be well under their lee.

Having regard to the great importance of the trade of the Humber and the port of Hull, as forming the chief outlet of British manufactures to the north and east of Europe, and also as the main channel for the importation of timber, flax and other products of the Baltic, and bearing in mind that Flamborough Head (which forms the southern headland of Filey Bay) is the point from which all vessels from the Humber to the Baltic take their departure, and further, that it is the first land generally "made" by homeward-bound vessels in the same trade, we have an additional circumstance in favour of Filey Bay.

Affording sufficient depth of water for vessels of the largest class in the navy, and being favourably situated for procuring coals, Filey Bay is, in a strategic point of view, at least equal to any other point along the north-east coast of England.

*Advantages of Filey Bay in a strategic point of view.*

There is yet another advantage in respect of position, which appertains in an especial manner to Filey Bay; I allude to the circumstance of its being the nearest point to west end of the Dogger Bank, which is the best fishing ground off the east coast of England. Although the Dogger Bank has been long known and frequented by the fishermen for cod, ling, turbot, soles, &c., I am given to understand that it is only within the last four or five years that they have become thoroughly acquainted with the deep-water haunts of the herrings. This ground lies due east from Filey and Flamborough Head, and is distant about 30 to 40 miles, the fishing boats coming to it from Lowestoft and Yarmouth on the south, and from Staiths on the north. From information received at Filey, I find that there are commonly employed on this part of the coast, at least 130 smacks and 570 luggers, or 700 boats in all, their crews numbering about 6,500 men. Taking into account the boats with stores and fishing gear,—the nets and lines alone being worth 200 *l.* for each boat,—they will represent a value of 750 *l.* each, or more than 500,000 *l.*† According to the average of the last three years, the sale of fish by each boat is said to have exceeded 1,000 *l.* per annum; we have thus an addition to the food of the country equal in value to the sum of 700,000 *l.* yearly. These figures will suffice to show the importance of the fisheries, and the amount of life and property exposed to great and undue risk immediately off Filey Bay, for want of a sheltered harbour which the boats can run for, in case of a gale springing

*Important advantages as regards fisheries.*

\* It has been stated to me that about 30 years since, during a succession of gales from W.S.W. to S.S.E., and extending over a fortnight, there were 750 vessels counted in Filey Bay at one time. As soon as the weather moderated, all the vessels most fortunately put to sea, as on the following day there was a very heavy gale from the E.N.E.

† I am indebted to W. S. Cortis, esq., of Filey, for much valuable information respecting the fisheries.

springing up. In addition to this drawback, the boats now frequently refrain from putting to sea in doubtful weather, for want of a harbour accessible at all times of tide, so that much loss occurs in this way; and instances are not wanting of serious losses arising from the fish being spoilt, in consequence of the time occupied by the boats having to beat up to Hull to land their cargoes. With a harbour in Filey Bay, available in all states of tide and in all weathers, it would be difficult to estimate the extent to which these fisheries would grow, as the number of boats is increasing on this part of the coast, even under the present unfavourable circumstances.

Superiority of Filey Bay to Bridlington Bay.

Before proceeding to the next branch of this Report, it may, perhaps, be well to state to you, that although some of the advantages which I have alluded to as appertaining to Filey Bay, may possibly be considered as equally applicable to Bridlington Bay, yet the superiority of the former is unquestionable for several reasons. Briefly to state two or three of the most prominent, we find; first, that Bridlington Bay is on the south, instead of on the north side of Flamborough Head, its position in this respect forming a material objection, as will be seen on reference to the evidence of most, if not all, of the witnesses who spoke on this point before the Select Committee on Harbours of Refuge in the last Session of Parliament, and this view will be fully borne out by a reference to the wreck chart. Secondly, with the exception of a small area at the north end of "Smithic Bank," there is no part of the bay under its lee with more than from  $3\frac{1}{2}$  to 4 fathoms water, the former being the prevailing depth; and thirdly, even if all other conditions had been equal, no materials fit for the construction of harbour works can be procured in Bridlington Bay, the nearest point of supply being 10 miles distant, viz., at Filey Brigg, and the cliffs to the north-west of it. I may mention, in confirmation of this, that about 30 or 40 years since some blocks of stone were taken from Filey Brigg and conveyed to Bridlington, at great cost and risk, as I am informed, for the purpose of building or repairing the works of Bridlington Harbour. I need not, therefore, dwell further on the question of the comparative advantages of the two bays.

Characteristics of Filey Bay, and facilities for the construction of a harbour of refuge.

We come, secondly, to the character of Filey Bay, and its advantages and facilities for the construction of a harbour of refuge.

Filey Bay is bounded by "Filey Point," or "Carr Naze," and "Filey Brigg" on the north-west,\* and Flamborough Head on the south-east, these points being about nine miles apart; the bay is two miles in depth, i. e., from north-east to south-west.

Carr Naze Point is from 120 to 150 feet above the level of the sea, and is terminated by Filey Brigg, which is a very remarkable reef or ledge of rock, projecting, at low water, just half a mile in advance of Carr Naze, and the general line of coast.

The height and bold projection of Flamborough Head, standing as it does so far in advance of the general line of coast, coupled with the circumstance of its being the only headland of chalk in this locality, which serves to mark it so well by day, and the character of its light—visible for 19 miles—causing it to be so easily "made" by vessels at night, combine to render this headland an important feature in Filey Bay, of which, as before stated, it forms the south-east termination.

Depth of water, and nature of ground, very favourable for anchorage.

The depth of water in Filey Bay is very favourable, the decrease being very gradual and regular as we approach the shore; this will be seen by reference to the annexed chart, and also when we come to the extent of the sheltered area afforded by the work I have to propose. The nature of the holding ground is such as is but rarely equalled, and cannot be surpassed, being a stiff Kimmeridge clay, covered with a mere sprinkling of clean siliceous sand. With the exception of the bottom in Portland Bay, the character of which is precisely similar, there is not, so far as I am aware, any anchorage ground on the coast of England of equal quality, and certainly none that can be called superior.

Entire freedom from banks, shoals, or tendency to silt up.

Again, as to freedom from banks or shoals, or accumulations of any kind, I have to speak in the same favourable terms. There is no tendency to silt or sand up, as is proved by the exact correspondence of the soundings at the present time with those shown upon the Admiralty chart, laid down from a survey taken under the direction of Captain Washington, in 1844. This is just what might be expected, as there is no accumulation of material along the adjoining shores, and no river bringing down sand or other matter which can give rise to any deposit, even when any portion of the bay might be inclosed within an artificial work. From the front of the town of Filey, down to the east end of Speeton Cliffs, there is a good sandy beach, admirably suited for disabled vessels to run upon in cases of extreme necessity, or for small class fishing-boats, which usually prefer to "beach."

Abundant supply of good fresh water for shipping.

Although, as before stated, there is no river running into Filey Bay, there is a small brook called "Long Whins Gill," yielding a never-failing and abundant supply of clear water, which flows into the sea at "Mile Haven," about a mile to the south of Filey town; this can be readily taken at a level of from 50 to 100 feet above the sea level, if necessary, and made available for vessels, at a trifling cost.

Materials on the spot suitable for harbour works.

Though last in order, by no means least in importance, among the advantages which Filey Bay possesses, I have to report that the character of the materials at Filey Point, and in the adjoining cliffs, lying to the north-west, in direct continuation of Filey Brigg, will be found very suitable for such a work as the formation of a breakwater; the rock here

\* The bearings are in all cases magnetic, and the distances in nautic miles.

here consisting of beds of calcareous grit, belonging to the oolite series; blocks of various sizes may be obtained, and well adapted for the construction of a breakwater. So far as can be judged from the appearance of the rock-beds as they now stand in the face of the cliffs, it would not seem to be necessary to resort elsewhere for any stone, except, perhaps, such of the outer or face courses as may come within the direct action of the sea; this, however, could only be determined upon after the cliffs were opened in a few places, so as to test the relative sizes and thicknesses of the beds. It is quite clear, that for the great mass of the work the stone is very suitable, as before stated, and, in this respect, Filey is most favourably circumstanced.

I will now describe the nature and extent of the works which I have to propose, in order to convert Filey Bay into a harbour of refuge.

Nature and extent of proposed works.

Starting from the eastern extremity of Carr Naze, I propose to carry the breakwater along the line of Filey Brigg to the extent of 1,800 feet, and bearing south-east by east, then curving to the southward for 800 feet in length, after which the line of work would run 4,200 feet south by east; then running by a curve towards the west for 1,400 feet, and terminating by an arm 1,400 feet long, bearing south-west by west, the total length being 9,600 feet, or 3,200 yards, the first 700 yards of which would be, comparatively, of a very light character, as its base or foundation would be at about half-tide level. If it were considered desirable, in a nautical point of view, to have a passage or entrance in the northern part of the harbour, in order to admit of vessels running in before the wind, in north and north-easterly gales, such an entrance might easily be made near the south end of the curve leading off from Filey Brigg. The eastern extremity of the Brigg would afford most valuable shelter for such an entrance in northerly gales, and with easterly gales there could be no disturbing effect upon the anchorage generally, as the width necessary for this purpose need not in any case exceed 50 or 60 yards, and, with the section which I shall hereafter have to recommend for the work generally, the additional cost would be very slight. Notwithstanding the length of this breakwater, it would be fully 1,000 yards shorter than the united lengths of the two piers proposed for Hartlepool by that justly eminent engineer the late Mr. Rendel.

Length and direction of breakwater.  
*Vide* chart annexed.

North entrance easily made, if desirable.

Such a work as I have suggested at Filey would have this further and material advantage: that the harbour, when made, would be altogether free from even the slightest tendency to silt, whereas, it appears by Mr. Calver's report, the liability to silt up in Hartlepool Bay is so great that in 12 years only, from 1826 to 1838, "the depth of water in the anchorage ground, and under the shelter of the Heugh, had decreased to an extent of at least from two to three feet." Again, in the same report we find, in reference to Hartlepool, that from 1838 to 1846, "a body of foreign matter had been deposited over an extent of not less than two-thirds of the low-water area of the bay, and the quantity so deposited would appear to have amounted to nearly half a million of cubic yards."

Comparison with Hartlepool Bay as regards tendency to silt.

*Vide* Parliamentary Paper, Sess. 1855, No. 110 (29), p. 15.

In framing the design just described, I have taken advantage of the form of Filey Brigg, so as to keep the work within the line of the main stream of tide, and thereby to cause little or no interference with the existing tidal currents.

There is another point, of considerable importance in works of this kind, that I have kept in view, and which should be here adverted to; I allude to the feasibility of enlarging the work to any reasonable extent, if desired, so as to increase the area of sheltered anchorage, still retaining the same general character in the design. In the case before us this may be accomplished by either of two methods or modifications, viz., by extending the south-west arm in the same line, which may be done for an additional length of half a mile, without diminishing the depth of water at the head or end more than from one to two feet, or the main (S: by E.) arm, by the slightest cant to the southward, might be continued to such a length as would satisfy the most extravagant demand for accommodation. An inspection of the annexed chart will fully elucidate these remarks.

Great capabilities for extension of proposed works, retaining same character of design.

The form given to the proposed breakwater is such, that whilst it takes the greatest advantage of the natural conformation of the bay, it would at the same time admit of the readiest possible entrance and departure.

As before stated, the depth of water in Filey Bay is very favourable to the construction of a harbour of refuge; the bottom within the line of proposed work is all clean ground, and is free from banks or shoals of any kind or description. It will be seen, by reference to the chart, and the table showing the area of sheltered anchorage, on the right-hand side of the sheet, that there would be not less than 200 acres having five fathoms depth and upwards at low water of spring tides, and completely sheltered from all winds: this depth would suffice for the largest ships in Her Majesty's navy; 403 acres would have upwards of 2½ fathoms of water, which would also be completely sheltered from all winds; this depth would suffice for the largest colliers. Within an east and west line, and sheltered from most of the gales on this part of the coast, which are between east and north, there would be 204 acres having five fathoms and upwards; 535 having three fathoms and upwards; 665 having 2½ fathoms and upwards, and 905 acres having one fathom and upwards, very nearly the whole of the last-named area having sufficient depth for the fishing-boats employed off the coast.

Extent of sheltered anchorage, &c.

Among the collateral advantages of the proposed work in Filey Bay, it may be mentioned, that the north-west end of Filey Brigg would be within one and a half mile of the York and North Midland Railway, with which a junction could easily be effected, so as to bring steam coals at a low rate, which might be delivered to vessels alongside quays, for

Facilities for procuring steam coal.

the construction of which there are convenient sites within the proposed harbour, near the point where the work curves to the southward, from the outer end of Filey Brigg.

Having made out an estimate of the cost of such a breakwater as I have described, upon the assumption that it be constructed with a base formed of rough rubble stone, and a vertical wall founded thereon, at a depth of from 14 to 15 feet below low water of spring tides, and executed in a thoroughly efficient manner, I have satisfied myself that it can be completed for the sum of 860,000 *l.* This includes the cost of circular end, light-keeper's house and lantern. I may add, that my confidence in the sufficiency of the estimate is the greater, from the fact that it is based upon the result of my experience in the execution of the breakwater at Portland, which is now in a very advanced state.

**Recapitulation.**

Having now reported upon the several points in connexion with this subject which appear to require notice from me, I would here beg to recapitulate, briefly, those which seem to be the most important.

First.—With regard to the advantages of the geographical position of Filey Bay :

It is situated between Flamborough Head and Fern Islands, within which points two-thirds of the vessels lost on the east coast of England are wrecked.

It is south of all the coal ports, which has been shown to be essential, because the wrecks of loaded colliers, as compared with those of colliers in ballast, have been proved to be in the proportion of four to one, and at least three-fourths of the coal trade is to the southward. The favourable position of Filey Bay is further proved by the number of loaded colliers anchoring there, under Speeton and Bempton cliffs.

It is most favourably situated for the trade of the Humber, being the chief outlet for British manufactures to the north and east of Europe ;

It is well placed, in a strategic point of view ;

And is immediately opposite to the west end of the Dogger Bank, which has always been considered the best fishing ground in the North Sea ; but its importance has become considerably enhanced within the last few years, by the discovery of the deep-water haunts of the herrings around this spot, and it is now, in consequence, frequented by the boats all along the coast, from Lowestoft and Yarmouth on the south, to Staiths on the north.

Secondly.—With respect to the natural advantages which Filey Bay possesses, and the facilities which it affords for the construction of a Harbour of Refuge.

There is ample depth of water for vessels of any size, up to the largest class of ships in Her Majesty's navy, as will be seen by reference to the chart and the table of sheltered areas within the proposed works ;

Holding ground which is but rarely equalled, and cannot be surpassed ;

Entire freedom from banks and shoals ;

Absence of all tendency to deposit ;

An abundant supply of fresh water, of excellent quality ;

And stone of suitable quality for a breakwater, in the cliffs immediately adjoining.

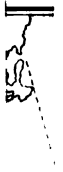
**Conclusion.**

Seeing, then, that the position of Filey Bay fulfils all the required conditions, that it affords such unusual facilities for the construction of a harbour of refuge, and that its natural advantages, in both respects, are such as may fearlessly challenge comparison with any and every other site on the north-east coast of England, I need scarcely dwell upon the expediency of your bringing forward its claims, not so much as a matter of local benefit as one of public duty ; for I cannot but think that the selection of Filey Bay as the place for the construction of a harbour of refuge will prove to be the solution of a difficulty which has long surrounded the question of a site for an efficient harbour of this class upon the north-eastern coast.

It appears to me, that whilst all other places have advocated their claims, those of Filey Bay have hitherto been entirely lost sight of, more, probably, from the want of some local and organised body to have these claims examined and put forward than from any other cause. I have, therefore, in this Report endeavoured to lay clearly before you the peculiar advantages which Filey Bay possesses, and, as I advised in October last, would recommend you to endeavour to ascertain the opinions of masters of vessels trading along this part of the coast upon its position, as calculated for a refuge harbour. These men have their lives, (and many of them their property) at stake in this matter, and on this point they may be considered as well qualified judges ; from their own actual experience they will be able to furnish you with valuable evidence, and from the very nature of their interests will allow no local interests to influence them in giving their opinions upon what must, of necessity, be to them a point of vital consequence.

Finally, I would beg to urge upon you the importance of representing the superiority of Filey Bay to the Select Committee of the House of Commons on Harbours of Refuge, appointed in the last Session of Parliament. You may rest assured, from the patient investigation and the strong interest evinced by the full attendance of Members at the several sittings of this Committee, that the great and peculiar advantages of Filey Bay will secure for it all the consideration to which it is so justly entitled.

I am, &c.  
(signed) John Coode,  
Civil Engineer.



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# I N D E X.

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## A.

**ABERDEEN HARBOUR.** There is no protection at Aberdeen from a north-east wind, *Stevenson* 257.

**Abernethy, James, C.E.** (Analysis of his Evidence.)—Civil engineer; has been employed, for the last nine or ten years, by the Admiralty, in examining and reporting upon various harbours, and has also been employed otherwise in the construction of the works of several harbours, 2010-2015—Considers that, in the Bristol Channel or the Welsh coast, the most important point for a harbour of refuge is at the Mumbles, near Swansea, 2016-2018. 2031, 2032—Facilities for providing material for breakwaters at the Mumbles, 2018. 2023—Proposition for the construction of two breakwaters of copper slag, at an estimated cost of 370,000*l.*; 2019 *et seq.*

Advantage of copper slag over limestone in the formation of breakwaters, 2023. 2034-2036—Position of the proposed breakwaters at the Mumbles; neither would be connected with the land, 2026-2030—Proposed encasement of the rubble work, above low-water, in frameworks of creosoted timber; saving thereby of time and expense, as compared with a masonry superstructure, whilst equal durability may be obtained, 2037-2069—Successful use by witness of a framework of creosoted timber in the construction of a pier at Blyth, on the Northumberland coast, 2037. 2052-2057—Use of copper slag in the breakwater, &c, at the mouth of the Neath river, 2070, 2071.

[Second Examination.]—Witness has for several years been professionally employed upon various harbours on the east coast of Scotland, and elsewhere, 3106-3110—Has surveyed the harbour of Fraserburgh, and has furnished designs for its improvement and extension, 3111-3113—By extending the present north pier at Fraserburgh 1,400 feet shelter would be afforded from the north-east wind, these being already protection from southerly and south-easterly gales, 3114-3116. 3121. 3125. 3134. 3141-3148. 3151.

Area and depth of shelter to be supplied by the proposed extension of the pier; it is not intended to accommodate large ships, 3116. 3121. 3125-3133. 3149-3159. 3190, 3191—Estimate of 80,000*l.*, as the cost of the proposed extension of the existing works, 3117. 3118. 3130. 3135-3139. 3205—Facilities for obtaining excellent material for the construction of the pier, 3119. 3172-3174—Statistics (*App. p.* 220-222) as to the amount of shipping at Fraserburgh, 3120—The harbour would be easily accessible at all times, 3122—Shelter afforded by the existing works; these have cost 50,000*l.*; 3125. 3137.

Several local harbours, rather than one large harbour, are required on the north-east coast of Scotland, 3152. 3158, 3159—Greatly increased accommodation to be given, by extending the pier double as far as witness proposes; costly and tedious character of such further extension, 3157, 3158. 3192-3196—Disadvantages of Peterhead, as compared with Fraserburgh, as a site for a harbour of refuge; enormous expenditure necessary in the former case, 3160-3168. 3179. 3203, 3204. 3214—A portion of the works first executed was breached by the sea, but the repairing of it was not very expensive, 3169-3171—Larger and better material proposed to be used by witness than was first used, 3172-3174.

Except in northerly or north-easterly gales, the proposed extension could be carried on, 3175-3179—System of construction proposed; necessarily long time required, 3180-3189—Good character of the bottom on which the pier would be founded; the action of the North Sea need not be apprehended, 3197-3205—Explanation as to witness not having been favourable, a few years ago, to the construction of a pier at Fraserburgh, 3206-3213.

## Report, 1857-8—continued.

**Alderney.** Comment upon the large Government expenditure at Alderney as being almost useless, *Claxton* 1876. 1892-1897.

**Archangel Trade.** Merchant vessels going from the South to Archangel, &c. pass near to Peterhead, and pass Wick at a distance, *Stevenson* 42-44. 65-67. 249-253—Nature of the refuge available for vessels returning from Archangel, and caught in a north-easterly gale, *ib.* 83, 84—Vessels from the south to Archangel would take refuge at Peterhead, and not at Wick, *Henderson* 291, 292.

## B.

**Baltic Trade.** Advantage of a harbour at Wick, in the case of vessels from the Baltic to the west coast of Scotland, which cannot take Pentland Firth, *Stevenson* 33-39—Particular winds in which vessels from the south to the Baltic would be able to make Peterhead, *ib.* 45-64. 152. 162-170—Increased resort to Peterhead of vessels going to or from the Baltic or Archangel, if there were a harbour of refuge there, *Henderson* 298-300. 392, 393—Circumstances under which a harbour of refuge in Filey Bay would be useful to vessels in the Baltic trade, *Clark* 969, 970; *Coston* 1076-1085. 1094-1098. 1117. 1141-1144.

**Bar Harbours.** See *Tidal and Trading Harbours*.

**Barnstaple Bay.** Wrecks frequently occur in Barnstaple Bay, *Claxton* 1729—Witness has seen numerous wrecks in the bay, for want of an asylum at Hartland Point, *Chanter* 1947-1949. 1954, 1955—See also *Clovelly*.

**Beachy Head.** Reference in the Report of Sir Byam Martin's Commission to the local obstacles to a harbour of refuge on the east side of Beachy Head, *Sir H. Shiffner* 2076.

**Best Edward.** (Analysis of his Evidence.)—Master mariner; has sailed chiefly from the northern coal ports to the Thames, 2797-2800—Dissents from part of Mr. Walker's evidence as regards Yarmouth Harbour, 2801-2804—Considers that Yarmouth roadstead cannot of itself be made a harbour of refuge, 2805—For vessels from the northern ports to London, as well as for vessels from the Baltic, the most dangerous part of the east coast is between Flamborough Head and Whitby, 2806-2816—Vessels lost north of Flamborough are often vessels which had reached the Head and were driven back again, 2814-2816.

Evidence in favour of Filey Bay, as the best site for a harbour on the east coast, 2817 *et seq.*—The great majority of the masters of colliers prefer a harbour of refuge at Filey to one at any other place, 2819, 2820. 2832, 2833—Advantage of a harbour at Filey over one at Hartlepool, for the coal vessels, as well as for vessels from the Baltic, 2825, 2826. 2834-2837. 2855-2857. 2867—With a harbour of refuge at Filey Bay, there would be no pressing want for another between the coal ports and the Thames, 2843-2846—The losses on the east coast are chiefly of laden vessels which cannot enter the tidal harbours, 2847-2854. 2858-2863—Low depth of water in Hartlepool Bay, 2854. 2868-2871.

As regards Yarmouth harbour it cannot be made properly available as a harbour of refuge, on account of the inadequate area and depth, 2874, 2875—Difficulty in vessels leaving Yarmouth Roads in certain winds, and taking refuge in the river, 2876-2882—Width of the river adverted to with reference to the mooring and accommodation of many vessels therein, 2884-2900—Vessels can for the most part ride out a gale in the Roads, or get protection under the Scroby or Corton sands, without finding it necessary to make for the harbour, 2901-2907.

**Bethel, Mr.** Mr. Bethel's plan of a timber facing in the construction of breakwaters has been the most successful, *Walker* 3892.

**Blyth (Northumberland).** Successful use by witness of a framework of creosoted timber in the construction of a pier at Blyth, on the Northumberland coast, *Abernethy* 2037. 2052-2057.

**Bowen, George.** (Analysis of his Evidence.)—Has been master of a vessel for 36 years; is thoroughly acquainted with the Bay of Cardigan, and generally with the English coasts, 3393-3398—Considers that between Milford Haven and Holyhead the best site for a harbour of refuge is inside of Kemess Head, in Cardigan Bay, 3399 *et seq.*—Advantages of Kemess Head over St. Tudwall's Roads and other places on the same coast as the site for a harbour, 3400-3408. 3426-3442—Many vessels have been wrecked in Cardigan Bay; it is a very dangerous place, 3416-3421. 3425. 3441, 3442. 3451—The proposed harbour would be a great boon to vessels from Liverpool, 3422-3425.

Advantage of the south channel over the north channel in the case of outward-bound vessels from Liverpool, 3443-3448—Doubt as to a harbour of refuge at Portrush being of much use, 3446—Bude Bay would be a good place for a harbour of refuge in the case of vessels not able to get round the Land's End, 3450, 3451.

**Bridlington Bay.** Objections to Bridlington Bay as the site for a harbour, *Sir J. C. Ross* 623. 653; *Clark* 1012-1016. 1031-1033; *Coston* 1118-1131.

**Bristol Channel.** Between Milford Haven and St. Ives a harbour is not required, *Henderson* 469, 470—Doubt as to the coast about the entrance to the Bristol Channel being unusually foggy, *Sheringham* 1159, 1160. 1256-1258—Vessels caught in a south-west gale at the entrance of the Bristol Channel would probably run for King Road, *ib.* 1212, 1213. 1223, 1224—Particulars as to the prevailing winds in the channel as shown by witness's log for a period of four years, *ib.* 1215—Numerous losses in the channel from the necessity of running there in foggy weather, *Forward* 1358-1360—The majority of vessels lost in the channel are forced up by the gales, *ib.* 1444-1446—Vessels caught in a south or south-west wind, and not able to make Padstow, could run up the channel and take refuge in King Road, *Bryant* 1469. 1529-1547—The general necessities of the channel would be met by the proposed harbour at Padstow, and the present one at St. Ives, *ib.* 1502.

The navigation of the channel is dangerous generally, but more especially eastward of Lundy, *Samson* 1586-1589. 1594—A north-west wind is an opposing wind to outward-bound vessels out of the channel, *ib.* 1590-1593—There is at present scarcely any refuge for vessels caught in the channel in a gale, *ib.* 1594—Part of the Welsh Coast is lined with sands, and vessels going down the channel keep as near the English Coast as possible, *ib.* 1603-1606—Difficult navigation up the channel to King Road, *ib.* 1625-1628—Danger in running up the channel or keeping too near the Cornwall Coast, *ib.* 1641. 1652-1655—About 1,000 vessels trade up and down the channel weekly, *ib.* 1642, 1643.

Except in bad weather the channel is not dangerous, *Claxton* 1679. 1808—A resting place high up the channel, at the Foreland, would be a great convenience both to large and small vessels, *ib.* 1782-1786—Want of refuge for coasters passing along the north coast of the channel to the south of Ireland, and caught in a westerly gale, unless they can make for Caldy Island or find refuge at the Mumbles, *ib.* 1792-1803—Absence of danger in running up the channel for King Road, *ib.* 1804-1811. 1877.

Limit of the pilot ground in the Bristol Channel, *Chanter* 1950—Obstacles to vessels returning to King Road if caught in a gale to the west of Lundy Island, *ib.* 1951—Immense amount of shipping which annually traverses the Bristol Channel westward, and is subject to danger on passing Lundy Island, *ib.* 1952-1954—Reference to a return showing the tonnage of the ports of the channel; the tonnage is one-tenth and the number of vessels one-sixth of all the ports in the United Kingdom, *Gething* 3659-3667. 3769.

Reference by the Committee to the several sites in the Channel proposed for a harbour of refuge, and to the evidence in favour of each, *Rep. p.* viii—Before deciding on any point special reference should be had to the increasing sea traffic arising from the rapid development of the coal and iron fields in South Wales, *ib.*

See also *Caldy Island. Clovelly. Hartland Point. Land's End to Hartland Point. Lundy Island. Mumbles, The. Padstow. St. Ives.*

**Bryant, John Dyer.** (Analysis of his Evidence.)—Is connected in several capacities, public and private, with the port of Padstow, and is well acquainted with the neighbouring coast, 1447-1454—Sundry points on the coast which have been suggested for harbours of refuge, 1455—Evidence in favour of Padstow as preferable to St. Ives or any other point along the coast, as the site for a harbour, 1456 *et seq.*—Refuge in Padstow Harbour from a north-west wind, if part of Stepper Point were removed and an embankment made across Harbour Cove, 1458-1460. 1476-1496.

The coasting vessels of the Bristol Channel, &c. mainly require protection, and a harbour at Padstow would be available chiefly for them, 1460-1467. 1503-1505—Vessels caught in a south or south-west wind, and not able to make Padstow, could run up the Channel and take shelter in King Road, 1469. 1529-1547—Capacity of Padstow Harbour as regards width and depth; increased and excellent accommodation if the dredging and natural scour suggested by Captain Sheringham be carried out, 1470, 1471. 1474, 1475. 1492. 1505-1518. 1537-1540. 1551-1561. 1579—Capital holding ground in Padstow Harbour; it is clay and not sand; 1472, 1473. 1497-1499. 1527, 1528. 1541, 1542. 1562-1564.

Estimate that an expenditure of 30,000 *l.* would give a harbour at Padstow accessible at all times with twenty feet of water at the entrance, 1486. 1492. 1500-1512. 1573-1578—In a north-west gale a harbour of refuge would be more useful at Padstow than St. Ives, in the proportion of twelve to one, 1493-1496. 1501—The general necessities of the Bristol Channel would be met by the proposed harbour at Padstow and the present one at St. Ives, 1502.

Reference to the views of Captains Washington and Sullivan as being rather adverse to a harbour of refuge at Padstow, 1519-1526—Facility for outward bound vessels getting from under St. Ives Head into Padstow Harbour in a south-west wind, 1529-1543—

Report, 1857-8—*continued*.

*Bryant, John Dyer.* (Analysis of his Evidence)—*continued*.

How far large vessels could be accommodated in the proposed harbour, 1551-1561. 1579—Doubt as to the local trade being particularly interested in the harbour, 1565-1572—The lower part of Padstow Harbour is not subject to toll, 1580—Intermittent character of the casualties on the coast of Cornwall, *ib*.

*Buchan Ness (Scotland).* Probable reason of the great diminution since 1850 in the number of vessels passing Buchan Ness Lighthouse, *Henderson* 316-318—Good shelter if there were a breakwater at a certain point just off Buchan Ness Lighthouse, *ib*. 362-370.

Average annual number and tonnage of oversea and coasting vessels which paid light dues for Buchan Ness Lighthouse in the years 1846-1853, *App. p.* 210.

*Bude Bay.* Strong objection to a harbour of refuge at Bude Haven, *Sheringham* 1304, 1305—Special danger to vessels in Bude Bay for want of a harbour at Trevoze Head or Pentyre Point, *Claxton* 1684-1695. 1903-1905—Vessels embayed in Bude Bay could not make a harbour at St. Ives or Clovelly, *ib*. 1903-1905—Bude Bay would be a good place for a harbour of refuge in the case of vessels not able to get round the Land's End, *Bowen* 3450, 3451.

*Burgoyne, Sir John.* (Analysis of his Evidence.)—Was for thirteen years chairman of the Board of Works in Ireland, 2169, 2170—Considers that a harbour of refuge at Portrush on the north coast of Ireland would be extremely useful, 2173-2179. 2189—Portrush is a very desirable site for a harbour for naval purposes in time of war, 2174. 2180, 2181. 2187, 2188—Opinion that the public rather than the individual proprietors of land adjoining harbours of refuge should benefit by the increased value of such land in consequence of the public outlay, 2182—Witness has never been at Portrush, 2183, 2184—Material near Portrush for making the necessary works, 2185. 2193.

## C.

*Caithness Coast.* There have been several losses of fishing-boats and of life on the Caithness coast for want of a harbour of refuge at Wick, *Stevenson* 21-28. 159-161.

See also *Peterhead.* *Wick.*

*Caldy Island (Bristol Channel).* Natural shelter afforded by Cald Island, *Claxton* 1873, 1874—A place of refuge could be made at the island, *Hamilton* 3061.

*Cardigan Bay.* Many vessels have been wrecked in Cardigan Bay; it is a very dangerous place, *Bowen* 3416-3421. 3425. 3441, 3442, 3451—The most dangerous wind on the coast is the northerly, and in such wind a harbour in the bay would be most useful, *ib*. 3434-3440—Great in-draught of water in the bay, *Harris* 3463-3466.

Witness has made a plan for a harbour in Cardigan Bay; large accommodation to be provided for about 300,000 *l.* *Claxton* 3514-3520.

See also *Kemess Head.* *St. Tudwall's Roads.*

*Carlingford.* Both for the outward bound and inward bound trade of Liverpool a harbour of refuge at Carlingford Lough on the Irish coast would be particularly useful, *Thompson* 2918. 2925. 2952-2962. 2990-2993; *Hamilton* 3017-3022. 3035-3041. 3104—Carlingford bar might easily be removed, and there is very good shelter and anchorage there, *Thompson* 2926-2930—Advantage of a harbour of refuge at Carlingford over one at Portrush, *ib*. 2952-2955. 2983-2993.

A harbour of refuge at Carlingford, by removing the bar, which might be done at a comparatively small cost, would be of very great importance, and would be the means of saving many wrecks, *Williams* 3921-3953—Advantage of a proper harbour at Carlingford on account of its neighbourhood to Dundrum Bay; several losses in the bay would have been prevented by such harbour, *ib*. 3923. 3939-3952—The bar consists of blue clay and boulder stones, and could easily be removed, *ib*. 3925-3927—If the bar were removed, there would be an entrance to a very large area of water, and good holding ground; there are upwards of 1,000 acres within the three fathom line, *ib*. 3929.

The Committee recommend an outlay of 20,000 *l.* for the improvement of Carlingford Harbour, *Rep. p.* viii, ix.

*Carmarthen Bay.* Carmarthen Bay is a dreadful place to be caught in, *Claxton* 1800.

*Carnarvon Harbour.* Advantage if Carnarvon bar were better lighted, *Sheringham* 1199.

*Casualties.* See *Wrecks and Casualties.*

*Cerjat,*

## Report, 1857-8—continued.

*Cerjat, Lieutenant Charles Thomas, R.N.* (Analysis of his Evidence.)—Commands Her Majesty's ship "Jackal," stationed on the east coast of Scotland for the protection of the fishing, 528-531. 546-549—Considers that a harbour of refuge at Wick would be very important, both for fishing and other vessels, 532-536—Peterhead, however, both in a national and a commercial point of view, is the most desirable site for a harbour on the east coast, 537-544—Witness concurs generally in the evidence of Captain Henderson, 545.

*Chanter, Thomas Burnard.* (Analysis of his Evidence.)—Lloyd's agent, &c., at Bideford; is well acquainted with Barnstaple Bay and Clovelly Harbour, 1944-1946—Has witnessed numerous wrecks in Barnstaple Bay for want of an asylum above Hartland Point, 1947-1949. 1954, 1955—Limit of the pilot ground in the Bristol Channel, 1950—Obstacles to vessels returning to King Road if caught in a gale to the west of Lundy Island, 1951—Immense amount of shipping which annually traverses the Bristol Channel westwards, and is subject to danger on passing Lundy Island, 1952-1954—Great importance of a harbour at Clovelly, near Hartland Point; estimate of its cost; shelter to be afforded, 1955-1964.

*Clark, Mark.* (Analysis of his Evidence.)—Master mariner; has been about thirty years in the coasting trade on the east coast, 906-912—The most dangerous part of the coast is between Flamborough Head and Redcar, 913—Accidents and wrecks are much more numerous in the case of laden ships than of light ships, 914, 915. 955. 1044, 1045—Colliers generally leave their ports in fleets, and in the great majority of cases, get as far as Flamborough Head or Filey Bay, 916-919. 940-944—Witness has been off Flamborough Head when there have been from 300 to 400 vessels detained there by contrary winds, 916. 964. 997-1000.

Shelter from southerly gales under Flamborough Head, 920-924. 997-1000—Danger to vessels detained under Flamborough Head when a gale comes from the east or east by north or south-east, 925-930. 946. 971-973—The great mass of wrecks occur from vessels being driven back from Flamborough Head, and foundering or going on shore in trying to make Hartlepool and other ports, 930-935. 952-954. 960, 961. 971-973. 997-1006. 1019-1027—Frequent loss by collision off Flamborough Head, 934. 964, 965.

Evidence in favour of Filey Bay as the most eligible place on the coast for a harbour of refuge, 936 *et seq.*—Greater facility in making Filey than Hartlepool when the wind is from certain points, 939-951. 1007-1011—Circumstance of witness having been driven back from Flamborough Head to Hartlepool three times in one voyage; many vessels at the same time were driven to Leith Roads, 956-969. 976. 1002-1006—Disposition of Hartlepool to silt up, 966-968. 1037-1043—Advantage of a harbour at Filey to vessels in the Baltic trade, 969, 970.

Witness is a native of Bridlington, and is altogether disinterested in recommending a harbour at Filey, 974, 975—In a south-easterly gale, vessels from off Flamborough Head could keep the sea, but would rather make for a harbour at Filey, 977-985—Cross sea in passing Flamborough Head, 991, 992. 1000—Partial shelter in Yarmouth Roads, 993, 994. 1019-1021. 1046—Drawbacks upon Bridlington Bay as a harbour of refuge, 1012-1016. 1031-1033—Average tonnage of colliers, 1017—Greater difficulty of loaded vessels than light vessels in making the tidal harbours when driven back by gales, 1022-1030—There is no fear of any silting up in Filey Bay, 1034-1036.

*Claxton, Captain Christopher, R.N.* (Analysis of his Evidence.)—Has had considerable experience in regard to the navigation of the Bristol Channel; has known it well since 1820; 1669-1678—Except in bad weather, the Channel is not dangerous, 1679. 1808—Witness has had much experience in regard to the Cornwall coast, 1680—Want experienced by witness of a harbour on the coast, 1681-1683. 1743-1746—A harbour of refuge would be more useful at Trevoze Head or Pentyre Point than at St. Ives, 1684-1695. 1818. 1854—Advantage, if besides a harbour at Trevoze Head, there were one also at St. Ives, 1686. 1693-1695. 1818. 1854, 1855.

The expense of breakwaters on the Cornwall coast would be about the same at different places in proportion to the size, 1696, 1697—Witness has surveyed Padstow, as well as the whole coast of Wales and the Irish Channel, 1698-1700—Great facilities for improving Padstow Harbour, 1701-1704—Particulars as to the depth of water at Padstow, 1702. 1754-1757—For large vessels Padstow Harbour is not adapted, nor do large vessels often go near the place, 1704. 1706. 1739-1747—Great importance of improving Padstow as a harbour of refuge for the coasting trade, 1704, 1705. 1709. 1726, 1727. 1736-1749.

More vessels and lives would be saved by a proper harbour at Padstow than elsewhere on that coast, 1704. 1736-1738—Excellent holding ground at Padstow, 1707-1710—Witness, who is a marine surveyor, has been professionally employed in surveying Padstow, 1710, 1711—The cutting down of Stepper Point and deepening the bar by increasing the scour of the channel, or by dredging, are the only requirements for the improvement of Padstow, 1714-1724—The whole improvement might be done for about 30,000 *l.*, including about 15,000 *l.* for cutting down Stepper Point, 1725. 1914.



Report, 1857-8—*continued.*

*Claxton, Captain Christopher, R.N. (Analysis of his Evidence)—continued.*

Reference to the contemplated construction by a private company of a pier and breakwater at Holywell, near New Quay; propriety of Government assistance in the matter, 1727, 1728. 1898-1901—Wrecks frequently occur in Barnstaple Bay, 1729—Suggested construction of a pier at Clovelly, as providing a refuge for the numerous fishing boats of that locality, 1730-1735—Harbours of refuge at St. Ives, Trevoise, and Clovelly would each be exceedingly useful, 1735—For large vessels a breakwater at Lundy would be especially useful, 1749.

Wherever a breakwater may be formed on the Cornish coast, the mode of construction should form a scour, so as to prevent a silting up, 1750-1753—Silting up of New Quay harbour in four or five years, 1752, 1753—Respects in which salient points are more desirable than bights of bays, as sites for harbours of refuge, 1759-1767—An outlay of about 300,000 £ at Lundy Island would provide protection for six or seven dozen small vessels and for seven or eight large vessels, 1768-1775. 1910.

Prevention of very numerous wrecks if there were a harbour of refuge at the Mumbles, on the Welsh coast, 1776-1781. 1787-1790—A harbour at the Mumbles would cost about 300,000 £, 1780—A resting place high up the Bristol Channel, at the Foreland, would be a great convenience both to large and small vessels, 1782-1786—Lundy Island is the best place for a harbour in the lower part of the channel, as the Mumbles is the best place higher up the Channel, 1791.

Want of refuge for coasters passing along the north coast of the British Channel to the south of Ireland, and caught in a westerly gale, unless they can make Caldy Island or find refuge at the Mumbles, 1792-1803—Absence of danger in running up the Channel for King Road, 1804-1811. 1877—Advantage of a refuge at the Mumbles rather than at King Road, 1812—Further statement as to the depth of water at Padstow, 1813-1815—There is not much room in Padstow Harbour for large vessels to bring up in bad weather, 1816, 1817.

Amount of shelter to be afforded by a harbour of refuge respectively at St. Ives and Trevoise Head, 1818. 1854, 1855—Respects in which a harbour of refuge at St. Tudwall's Roads would be more useful than Holyhead Harbour for outward bound vessels from Liverpool, 1819-1832—If there be but one large work in the Bristol Channel it had better be at the Mumbles, 1833-1836—The Mumbles would be available to the largest ships, and would make a good naval station, 1837, 1838.

Further statement as to the precautions to be taken in constructing breakwaters on the Cornwall coast, in order to guard against accumulations of sand, 1839-1850—Facility at Pentyre Head for the formation of a harbour of refuge, 1848-1853—Further evidence relative to the importance of a harbour of refuge at the Mumbles, showing under what circumstances it would be most useful, 1856-1872. 1884-1888. 1940-1943—There is excellent holding ground at the Mumbles, 1867-1869—There is plenty of material there for a breakwater, 1870.

Natural shelter afforded by Caldy Island, 1873, 1874—A breakwater at Fishguard would have saved many wrecks, 1875—Kemess Head, in Cardigan, is a more desirable place than Fishguard for a harbour of refuge; its advantages, 1875. 1918-1920—Besides special large works at salient points, &c., improvement of the existing harbours generally is most desirable, 1876. 1892. 1900—Comment upon the large expenditure at Alderney as being almost useless, 1876. 1892-1897.

Obstacles to making Padstow Harbour properly available for large vessels, 1878-1884—For strategical purposes St. Ives is the best point on the Cornish coast, 1887—For large vessels from Liverpool, &c., that could not get round the Land's End, a harbour at St Ives would be a great boon, 1889—Propriety of Government making advances in aid of local funds towards the improvement or creation of harbours, 1898. 1900. 1902—Vessels embayed in Bude Bay could not make a harbour at St. Ives or Clovelly, 1903-1905.

Harbours at St. Ives, Clovelly, and Trevoise Head would not supersede the necessity of a refuge at Padstow for the coasting trade, 1906-1909. 1921-1934—About 300,000 £ would be the cost of a harbour at either Trevoise Head, Pentyre, St. Ives, or Clovelly, 1911-1913—Means for widening the entrance to Padstow, 1917—Reference to a certain chart showing the availableness of Padstow, St. Ives, Clovelly, &c., to vessels caught in a gale within nine miles of the coast, 1921-1934—A harbour at Lundy Island would be of the most service to the foreign trade and large vessels from Bristol, 1935-1938—A harbour at the Mumbles would be the most useful for the coasting trade, 1935, 1936. 1939-1943.

[Second Examination.]—Witness has made a plan for a harbour in Cardigan Bay; large accommodation to be provided for about 300,000 £, 3514-3520—Correction of former statement as to the period in which the harbour at New Quay has been filled up by silting, 3521—Plan for an extension of some works about to be made at Holywell by a private company, 3522.

## Report, 1857-8—continued.

**Clovelly (Bristol Channel).** Poor shelter in Clovelly Roads when the wind is west-north-west, *Forward* 1410, 1411—Evidence in favour of Clovelly, in Barnstaple Bay, as the best site in the Bristol Channel for a harbour of refuge, *Samson* 1595 *et seq.*—Favourable opinion of Captain Vetch in regard to Clovelly as the site for a breakwater, *ib.* 1644—A breakwater open at the north-west and south-west is all that would be required, *ib.* 1646—The coasting trade as well as the foreign trade would be benefited by a harbour at Clovelly, *ib.* 1648-1656—Excellent holding ground at Clovelly, *ib.* 1662, 1663.

Suggested construction of a pier at Clovelly, as providing a refuge for the numerous fishing-boats in that locality, *Claxton* 1730-1735—Great importance of a harbour at Clovelly, near Hartland Point; estimate of its cost; shelter to be afforded, *Chanter* 1955-1964—Mr. Page has estimated the cost at 77,000 *l.* *ib.* 1957, 1958—Sir James Williams now approves of the harbour, and will probably give some land required in carrying it out, *ib.* 1958—Next to Lundy, Clovelly is the best site in the Bristol Channel for a harbour of refuge, *Gething* 3649.

**Colliers.** See *England, North-east Coast of. Filey Bay. Flamborough Head. Laden Vessels.*

**Collisions.** Total of 244 vessels lost by collisions in five years (as shown by the wreck chart), *Rep. p. iv*—Total of 543 collisions with serious damage, *ib.*

See also *Flamborough Head.*

**Commencement and Progress of Works.** The Committee earnestly urge the importance of commencing the required works at as early a period as possible, and of placing them under some system which will secure their steady and speedy progress, *Rep. p. xxi.*

**Commission of 1844.** Considerable time and attention bestowed by the Commission of 1844, upon the question of harbours, *Walker* 3843. 3849.

**Construction.** Proposed construction of breakwaters by encasing the rubble work above low water in frameworks of creosoted timber, saving thereby of time and expense, *Abernethy* 2037 *et seq.*—Great saving of material by means of the framework, whilst material is used that could not otherwise be used, *ib.* 2048-2051. 2064. 2067—By the instrumentality of the framework about half the expense would be saved, whilst not one-fifth part of the time would be required as compared with Mr. Rendel's mode of construction, *ib.* 2060.

Apprehended destruction of any timber frames which might be used as a means of depositing the rough material without waste, as on the staging system, *Walker* 3887-3892—There seems to be at present only two modes of constructing breakwaters, that is as at Dover and at Holyhead, and both are very expensive, *Vetch* 3896, 3897—Witness has not seen any works upon Mr. Abernethy's system of employing a timber facing in depositing the material, but understands the works at Blyth are very effective, *ib.* 3898-3912.

Different modes of construction adverted to by the Committee, who are disposed to view favourably the plan invented by Mr. Rendel, as used at Holyhead, or as modified by Mr. Abernethy, *Rep. p. xx.*

See also *Bethel, Mr. Blyth (Northumberland). Copper Slag. Iron Breakwaters.*

**Convict Labour.** Convenient employment of convict labour if a harbour were being constructed at Lundy, *Drew* 3640.

**Coode, John, C. E., F.R.S.** (Analysis of his Evidence.)—Is the engineer in charge of Portland Breakwater, 732-734—Has reported in favour of a harbour of refuge at Filey Bay on the east coast, 735, 736—Is not intimately acquainted with the coast north of Scarborough, but has very minutely examined Filey Bay and its neighbourhood, 737-741—Filey Bay possesses very great and very peculiar capabilities for a harbour of refuge; it is capable of affording much more shelter than is contemplated on witness's plan, 742, 743—Witness has only recently reported upon the eligibility of Filey, having been locally employed to examine into the matter since the sitting of the Committee in 1857; 744-749.

The great value of a harbour in Filey Bay would be in affording shelter to the great number of laden colliers, frequently caught in a south-easterly or southerly gale before they can round Flamborough Head, 750 *et seq.*—Flamborough Head is the south headland of Filey Bay, and is from six to seven miles distant, and about three miles more seaward, 751. 798. 810. 825-827—Much greater risk of loss by foundering in the case of laden vessels than of light vessels, 753-757. 867—Statement showing that the loss of life is ten times as great in the case of vessels in cargo as of vessels in ballast between the Tyne and Flamborough Head, 756-758.

Possibility of vessels caught in a south-easterly gale, north of Filey Bay, being able to reach a harbour there, 759-762—Peculiar facilities at Filey for the provision and laying down of the material for the breakwater, 762-764. 814, 815—The total length of the breakwater proposed by witness is 9,600 feet, 765, 766—Acreage and depth of anchorage to be given in the proposed harbour, 767-771—Shelter would be given from every wind that blows, 767. 904.—Absence of difficulty in making the harbour

## Report, 1857-8—continued.

*Coode, John, C. E., F. R. S. (Analysis of his Evidence)—continued.*

in a south-east gale, 772-775. 807—There is excellent holding ground, 776—Statement in proof of the absence of any tendency to silt up, 777. 853-858. 868-876.

Explanation of the great accumulation at times of laden vessels under Flamborough Head; witness has seen 300 there, and has heard of there having been 750 at one time under Speeton Cliff in Filey Bay, 778-786. 842-846—The risk in bringing up under Speeton Cliff would be obviated by a refuge in Filey Bay, 781, 782—Grounds for the conclusion that the great majority of wrecks on the coast north of Flamborough Head occur through laden vessels being driven back from that point by southerly or south-easterly gales, 783-786. 817. 828, 829. 845, 846. 877-879. 889-891.

Instances of vessels having been driven to and fro between Flamborough Head to Leith Roads for want of a harbour of refuge near the former place, 784-786. 895-897—Belief as to the silting up of Hartlepool Harbour, 787, 788. 899-903—The question of a harbour at Filey was discussed in 1852, and was favourably reported upon by a Committee of the House in 1836, 790-792—The fact of Filey not being a trade port is an argument in favour, rather than otherwise, of its eligibility for a harbour of refuge, 794, 796. 833—There is railway and telegraphic communication with Filey, 796.

Although Filey is from six to seven miles distant from the more salient point of Flamborough Head, it is the nearest eligible point to the greatest point of danger, and a harbour of refuge there would save more lives than a harbour elsewhere along the coast, 798-801. 809-812. 838—The losses of laden colliers as compared with light ships are as four to one, 802. 816—Value of a harbour at Filey when the gale is from the north or north-east, 803-805. 808—Special importance of the position of Filey with reference to national defence, 812. 838. 905.

Estimate of 860,000 *l.* as the cost of the proposed breakwater, 813-816. 859-865—Mode of construction proposed, 814—Obstacles to a harbour of refuge at Flamborough Head, 825. 887-889—Harbours of refuge at Hartlepool, the Tyne, and North Tees, would still not obviate the necessity of one at Filey, 830, 831—Belief that ninety-nine masters of colliers out of 100 would bear out witness's conclusion that Filey Bay is the best site for a harbour, 832—Dissent from the embayment theory of Mr. Calver: points which the line of embayment should embrace, 834-837—Advantage of Filey over Hartlepool in being thirty-six miles more eastward, 839, 840—There might be an auxiliary harbour in Tees Bay, 841.

Explanation that the numerous wrecks near Sunderland are those of laden vessels driven back thither for want of a harbour to the south, 846—Certain amount of protection afforded by Yarmouth Roads, although many vessels are wrecked on the shoals, 847-851. 866—Avoidance of collisions off Flamborough Head if there were a place of refuge at Filey, 877-879—Doubt as to the proposed harbour being of much use in preventing foundering, which now occur at some distance off the coast, 880-886.

Reference to a petition, very numerous signed by masters and mates in favour of Filey Bay, as the best point for a harbour of refuge, 890, 891—Difficulty in vessels taking shelter at Hartlepool on account of the low depth of water; when they cannot make Filey Bay in a southerly gale, they must go on to the Firth of Forth, 892-897—Obstacle to keeping up a proper depth within a breakwater at Hartlepool, on account of the accumulation of sand, 898-903.

*Coode, Mr.* Letter from Mr. Coode to the Chairman of the Committee, dated 31 March 1858, referring to the much larger proportion of wrecks in the case of laden than of light colliers as strengthening the claims of Filey Bay as the site for a harbour, *App. p.* 219.

Report by Mr. Coode, dated January 1858, relative to the proposed harbour in Filey Bay, *Sup. App. p.* 3-8.

*Copper Slag.* Advantage of copper slag over limestone in the formation of breakwaters, *Abernethy* 2023. 2034-2036—Use of copper slag in the breakwater, &c., at the mouth of the Neath River, *ib.* 2070, 2071.

*Cornwall, Coast of.* See *Bristol Channel.* *Land's End to Hartland Point.* *Padstow.* *St. Ives.* *Towan Head.* *Trevoose Head.*

*Cost.* Propriety of Government making advances in aid of local funds towards the improvement or creation of harbours, *Claxton* 1898. 1900. 1902.

Consideration by the Committee of the cost of the several works needful purely or mainly for harbours of refuge; total of 2,000,000 *l.*, *Rep. p.* ix, x—An outlay of 2,000,000 *l.* is comparatively small in proportion to the great benefits to be attained, *ib.* x, xxii—The Committee are of opinion that a considerable proportion of the cost should be defrayed by the public Exchequer, *ib.* xi.

The Committee recommend that advances be made at the rate of 3 per cent., and repayable in fifty years, for facilitating local improvements of small or tidal harbours, *Rep. p.* xxi.

See also *Carlingford.* *Filey Bay,* 5. *Mumbles, The.* *Newhaven and Seaford Bay.* *Padstow,* 4. *Passing Tolls.* *Peterhead,* 5. *Portrush,* 4. *Self-supporting Harbours.* *Wick,* 3.

Coston,

**Coston, Henry.** (Analysis of his Evidence.)—Master mariner; has been two years in the coasting trade between Lynn and Newcastle, and nineteen years in the Baltic trade, 1047-1051.—The neighbourhood of Flamborough Head is the most dangerous part of the coast between Newcastle and Lynn, 1052.—The majority of the laden vessels lost in Tees Bay, or Hartlepool Bay, &c., have been wrecked through being driven back from Flamborough Head by easterly or south-easterly gales, 1053-1060. 1086 *et seq.*—When caught in a gale before reaching Flamborough Head, witness has always kept his ship to sea, or run for the Firth of Forth, it being very dangerous to enter the tidal harbours with laden vessels, 1065-1075.—Circumstances under which a harbour of refuge in Filey Bay would be useful to vessels in the Baltic trade, 1076-1085. 1094-1098. 1117. 1141-1144.

Witness considers that, looking generally to the wants of the coasting trade and the Baltic trade, a harbour at Filey would be more useful than at any other place on the east coast, 1079 *et seq.*—In the great majority of cases, laden colliers from the northern ports get as far as Flamborough Head, where they often accumulate in great numbers, 1086-1095. 1102.—Usefulness of a harbour at Filey in the case of vessels caught in a north-east gale north of that place, 1108-1112.—Drawbacks upon the usefulness of a harbour of refuge in Bridlington Bay, 1118-1131.—Greater availableness of a harbour at Filey than at Hartlepool or in Tees Bay, 1132-1140.

**Cromarty Firth.** There is considerable difficulty at times in getting up the Firth of Cromarty, on account of the contrary winds, *Stevenson* 108-113; *Henderson* 281-286.

**Cumming, Captain William, and Captain James M'Kellar.** (Analysis of their Evidence.)—Are both in the merchant service, and have frequently gone north-about from Glasgow to America, 2397-2399.—(*Captain M'Kellar.*) Considerable danger on the north coast of Ireland when vessels are caught in a north-west gale, 2400-2409.—Excellent protection at the Skerries, if certain works were carried out there, 2410-2417.—Many vessels have been lost on the north-east and north-west coasts of Ireland, 2418.

(*Captains M'Kellar and Cumming.*) A large proportion of the vessels from Glasgow and Liverpool to America or Canada go north-about; still greater use of the North Channel, if there were a harbour at Portrush, on the north coast, 2419 *et seq.*—From the Clyde to any of the American ports the northern passage is the shorter, 2421. 2437, 2438.—(*Captain Cumming.*) Both from Liverpool and Glasgow, vessels to Canada would go by the North Channel, if the wind were south or south-west, 2433-2438. 2504-2511.—(*Captain M'Kellar.*) Difficulty at present in sailing vessels making use of Portrush harbour, 2450-2452.

(*Captain Cumming.*) Belief that the Glasgow traders generally would rather have a harbour on the north coast than any other part of Ireland, 2464, 2465.—The bar at Waterford should be deepened, 2466.—Loughs Foyle and Swilly are exceedingly inconvenient as harbours of refuge, 2471, 2472. 2498.—The trade from Glasgow to the West Indies or the Mediterranean chiefly goes south, as being the shortest passage, 2473-2476.—The chief danger of the north passage is in a north-west wind, 2477, 2478.

(*Captain M'Kellar.*) Vessels going westward could not leave the Skerries on their voyage in a north-west wind, 2479-2484.—The importance of a harbour at Portrush has been spoken of for some years, 2485.—(*Captain Cumming.*) Advantage of a harbour at Portrush, at which vessels from America might call for orders before going on to the Clyde, 2488-2491.—There is some danger in the navigation of the coast near Belfast, 2500-2502.—With a northerly or north-easterly wind vessels from Liverpool would go south-about, 2503. 2512.

## D.

**Dargan, William.** (Analysis of his Evidence.)—Has been very extensively engaged as contractor for public works in Ireland, 2580, 2581.—Is well acquainted with the Skerries at Portrush, 2582, 2583.—Peculiar facilities offered by the Skerries for a harbour of refuge, 2584.—Ample supply of excellent material, easily available, 2584-2589. 2593.—Witness projected a work at the Skerries, which has since been improved by Sir J. Dombrian and Mr. Gibbons, 2590-2592.—Estimate of 100,000 £ as the cost of the work; witness would undertake to do it in three years for that amount, 2594-2598.

When the works between the Little Skerries and the land were completed, considerable protection would be afforded, 2598-2604. 2609-2611.—The breakwater from the shore to the Little Skerries could be completed in about a year; it would cost rather more than half the total amount, 2605-2609.—The inner breakwater should be rubble work, with a faced wall at the top, 2612-2614.—Sufficient material might be got from the Large Skerries for the work connected with them, without diminishing their height too much, 2615-2617.—There is railway and telegraphic communication with Portrush, 2618, 2619.—The vessels in the Coleraine trade now touch constantly at Portrush, 2620-2622.

*Departure Ports.* A vessel leaving Hartlepool, or other ports, does not want an harbour of refuge there so much as somewhere on the voyage, *Code* 833.

*Donabrain, Sir James.* (Analysis of his Evidence.)—Was for thirty years Inspector of the Irish coastguard service; is familiar with the whole coast, 2304-2307. 2345-2358—Evidence strongly in favour of a harbour of refuge at the Skerries, near Portrush, on the north coast, 2309 *et seq.*—Natural protection by the Skerries, except from north-west winds, 2310-2316—Lough Foyle and Lough Swilly are safe harbours but are very difficult of access and egress, 2317-2327. 2356, 2357. 2383-2386. 2393-2395.

Adequacy of the plan proposed by Admiral Evans for rendering the Skerries an excellent protection in all winds, 2328-2331—Great depth and large area to be provided at the Skerries, 2333-2336—The holding ground is excellent, 2337—Numerous vessels which would probably avail themselves of a harbour at Portrush; many vessels from Liverpool, &c., which now go by the southern passage, would then go north-about, 2338-2344. 2351-2353. 2358-2390—There is no danger of the bay silting up, 2350—The entrance would not be difficult, and vessels could easily get out again, 2355. 2396—When inspector of the coast-guard service, witness officially recommended a harbour at Portrush, 2362. 2391, 2392.

*Dover.* Reference to the effect of the Dover breakwater upon the accumulation of shingle along the coast, *Weender* 1988-1999—Doubt whether Dover harbour can ever accommodate the large vessels that might be accommodated in the Downs, *Lowery* 2124. 2143-2147. 2151, 2152.

Explanation as to the slow progress of the works at Dover; at the present rate it will require forty-five years for the completion of the two piers, *Walker* 3870-3879. 3893-3895—The west pier consists now of an entire wall of solid masonry, eighty feet thick at bottom, and founded forty-five feet below low water of spring tides, *ib.* 3872, 3873—Considerable protection already afforded by the works; increased refuge as the works increase, *ib.* 3879-3881—Reason why the staging system of construction, as at Holyhead and Alderney, is not applicable at Dover, *ib.* 3882-3886.

*Downs, The.* The Downs are the great resort for vessels caught in the Channel in a south-west gale, as well as for vessels from the North Sea, &c., but there is a great want of shelter there, *Lowery* 2121-2124. 2143-2150—A most extensive and most safe harbour might be formed at the Downs within the limits of the break; position and nature of the breakwater required; the expense would probably be very great, *ib.* 2122-2135. 2152-2154—All the ships of the empire might take refuge, *ib.* 2128—The sandbanks at the Downs have varied very little, *ib.* 2164.

*Drew, Captain John.* (Analysis of his Evidence.)—Haven-master of the port of Bristol, and superintendent of pilots in the Bristol Channel, 3523, 3524—Is well acquainted with the coast from Bristol to London, 3525-3529—Considers that in the Bristol Channel, Lundy Island is by far the best place for a harbour of refuge, 3530 *et seq.*—Lundy would be easily accessible in all winds, 3531, 3532. 3540. 3553—Does not know anything of the expense of making a harbour at Lundy, but there is plenty of material there for the works, 3536, 3537. 3550-3552. 3560-3563. 3611, 3612. 3637-3639—Advantage of Lundy Island over Clovelly, as the site for a harbour, 3542-3544—Advantage of a harbour at Lundy Island or Clovelly over one at Swansea, 3545-3548. 3564-3566.

Lundy would be available equally for foreign-bound as for coasting vessels, 3554-3559. 3570. 3603, 3604—It is proposed to erect a breakwater from Rat Island to Tibbet Point: this would be at a depth of 13 fathoms at low water, 3560-3562. 3574-3582. 3600-3602—Consideration of the extent to which an improved refuge at the Mumbles would be useful, 3564-3566. 3583-3599. 3606—Doubt as to there having been any great number of wrecks which might have been prevented by a harbour of refuge at Lundy, 3567-3573. 3623-3625.

Advantage of the salient position of Lundy over any other position between the Mumbles and Milford Haven, 3613-3618—Necessity for a harbour of refuge at Lundy, notwithstanding the refuge afforded in Milford Haven, 3626-3636—Convenient employment of convict labour on a harbour at Lundy, 3640.

*Dunnethead Lighthouse.* Average annual number and tonnage of oversea and coasting vessels which paid light dues for Dunnethead Lighthouse in the years 1846-1853, *App.* p. 210.

## E.

*England, East Coast of.* See *Lowestoft.* *Yarmouth.*

*England, North-east Coast of.* Vessels caught in a south-easterly gale off Shields, or that part of the coast, had better keep to sea, and do not require a harbour, *Sir J. C. Ross* 599. 603, 604. 675-680. 707. 730, 731—Evidence in detail as to the great danger of the coast north of Flamborough Head, and off the Head; numerous losses through vessels being driven from under the Head in southerly and south-easterly gales, *Coode* 783 *et seq.*; *Clark* 930 *et seq.*; *Coston* 1053-1060. 1086 *et seq.*; *Best* 2814-2816—Dis-sent from the embayment theory of Mr. Calver; points on the north-east coast which the line of embayment should embrace, *Coode* 834-837—The most dangerous part of the coast is between Flamborough Head and Redcar, *Clark* 913.

The great mass of wrecks occur from vessels being driven back from Flamborough Head, and foundering or going on shore in trying to make Hartlepool and other ports, *Clark* 930-935. 952-954. 960, 961. 971-973. 997-1006. 1019-1027; *Coston* 1053-1060. 1086 *et seq.*—A harbour on the north-east coast, somewhere off the Tees, is very necessary, *Sir H. Shiffner* 2087—Harbours of refuge are urgently required on the north-east coast, *Lowery* 2136-2138—For vessels from the northern ports to London, as well as for vessels from the Baltic, the most dangerous part of the coast is between Flamborough Head and Whitby, *Best* 2806-2816—Greater claim of the north-east coast than any other part of the coast for a grant of public money, *Walker* 3837, 3838.

Letter from Mr. R. Ward Jackson to Lord Adolphus Vane Tempest, dated 8th May, 1858, with reference to the number of wrecks and casualties at different points along the east coast, *App. p.* 229, 230.

Evidence adduced by the Committee as to the great importance of a refuge on the north-east coast, *Rep. p.* vi, vii—The tonnage of five ports on the north-east represents fully 45 per cent. of the whole coasting trade of England, and fully 32 per cent. of the entire trade, coasting and foreign, *ib.* vi.

See also *Filey Bay.* *Flamborough Head.* *Hartlepool.* *Tees Bay.* *Tidal and Trading Harbours.*

*England, South Coast of.* The English Channel is now well provided with harbours of refuge, *Henderson* 453-455—South-westerly gales are the most dangerous in St. George's Channel, &c., *Sheringham* 1216—As regards the number of wrecks on the south coast, witness does not place much reliance on the Wreck Chart, and refers to a return, prepared from the "Admiralty Register," showing that, in the years 1852-1856, there were more lives lost on the south coast than on the coast from Berwick to the Thames, *Sir H. Shiffner* 2077, 2078. 2090-2095—Distance of 120 miles from Portsmouth to the Downs without any proper harbour, *ib.* 2079. 2086.

Between Plymouth and the Downs there is no urgent demand for a further harbour of refuge, *Lowery* 2119-2121. 2132, 2133, 2141, 2142—The wrecks on the south coast are chiefly through collision off Beachy Head, *ib.* 2139, 2140.

See also *Downs, The.* *Newhaven, and Seaford Bay.*

*Evans, Rear-Admiral George.* (Analysis of his Evidence.)—Has been Conservator of the Mersey for fifteen years, 2194, 2195—Was the first naval officer that commissioned a steamer, 2196, 2197—Was employed upon a Post-Office Inquiry Commission in 1835 and 1836, and was called upon to examine the coast of Ireland, in reference to the facilities of different places for harbours, 2198-2208. 2276-2278—Has examined, but not professionally, the coast about Portrush, 2209-2214—Has been round the world many times, but never saw any place where nature has done so much towards a harbour of refuge as at the Skerries, near Portrush, 2215-2218.

Nature of the works suggested by witness in order to make a very large harbour at the Skerries, which would be protected in all winds, 2218 *et seq.*—Witness would join the main land with the Small Skerries, but would for the present leave open the space between the Small and Great Skerries, 2219-2221. 2239-2247—Excellent material, readily available, for the construction of the works, 2235-2237—An outlay of about 100,000*l.* would cover the works proposed by witness, and an additional 15,000*l.* or 20,000*l.* would do all that was necessary towards closing the passage between the two Skerries, 2238-2242—There would be no danger of a silting up of the sand, 2250-2251.

Numerous vessels which would probably be benefited by a harbour at Portrush; vessels from Liverpool and the Clyde would in fact then go north-about instead of south-about, 2253-2261. 2267-2275. 3279, 2280. 2301-2303—Lough Foyle and Lough Swilly are very good harbours,

*Evans, Rear-Admiral George.* (Analysis of his Evidence)—continued.

harbours, but are very difficult of access to sailing vessels, 2256, 2257. 2286-2300—Vessels could get out of a harbour at the Skerries in any wind, 2257. 2300—The holding-ground is clay, 2262—The greater Skerries might, if necessary, easily be extended, 2263-2266—Tendency of the proposed harbour to diminish wrecks, 2282-2285.

## F.

### FILEY BAY:

1. *Generally as to the great Advantages of Filey Bay as the Site for a Harbour on the North-east Coast.*
2. *Its Advantage as a Naval Station.*
3. *Views of Captains of Vessels in favour of a Harbour of Refuge at Filey, rather than elsewhere on the Coast.*
4. *Nature of the Works proposed; Facilities of Construction.*
5. *Cost, as estimated by Mr. Coode.*
6. *Report by Mr. Coode in January 1858.*
6. *Views of the Committee; Importance attached to the Site.*

1. *Generally as to the great Advantages of Filey Bay as the Site for a Harbour on the North-east Coast:*

Evidence in favour of Filey Bay as the best site on the north-east coast of England for a harbour of refuge, on account of the salient position of Flamborough Head, *Henderson* 407-413. 416-420. 471-503—Facility for vessels to get out of Filey Bay, *Henderson* 409; *Sir J. C. Ross* 673, 674—Probability of vessels caught in certain gales off the coal ports making for a harbour at Filey, *Henderson* 416-419. 475-480—Witness has no connexion with Filey, *ib.* 482, 483.

Witness has recently viewed the bay in its character of a harbour of refuge, for which, as well as for a naval station, it is peculiarly fitted, *Sir J. C. Ross* 555 *et seq.*—The beach at Filey is a firm sand without any rock, *ib.* 560. 561. 574-576—Gradual deepening of the water off the coast, *ib.* 562.

Special advantage of the harbour in the case of laden colliers caught in a south-easterly or easterly gale under Flamborough Head, at which point such vessels frequently congregate in great numbers, *Sir J. C. Ross* 570-572. 586-593. 616-630. 644-662. 693-697. 722, 723; *Coode* 750 *et seq.*—Advantage of a harbour of refuge at Filey to vessels going northward and caught in a north-easterly gale at certain points north of the bay, *Sir J. C. Ross* 570. 573, 574, 627. 672. 701-712—Probable prevention of three-fourths of the wrecks which occur about Filey Bay, &c., if there were a harbour of refuge there, *ib.* 570. 589, 590. 646. 667. 714-717—The holding-ground is particularly good, *Sir J. C. Ross* 581, 582; *Coode* 776—Facilities at Filey, if there were a harbour there, for the refitting of disabled vessels, *Sir J. C. Ross* 583, 584.

A harbour at Filey would not be available in the case of vessels caught in a north-easterly gale south of Flamborough Head, or in a south-easterly gale off Shields, or leeward of the harbour, *Sir J. C. Ross* 596-603. 675, 676. 701-703—Nature of witness's connexion with Filey, *ib.* 605, 606—Statement in proof of the absence of any tendency to silt up, *Sir J. C. Ross* 610-612; *Coode* 777. 853-858. 868-876; *Clark* 1034-1036—Although Filey is not a port of commerce, vessels would run for it instead of for Hartlepool, Sunderland, or Shields, and wrecks would thereby be prevented, *Sir J. C. Ross* 616-622. 644-662. 693-697—For the general coasting trade, independently of the trade of the coal ports, a harbour at Filey will be much more useful than at Hartlepool, *ib.* 631, 632.

Witness has reported in favour of a harbour of refuge at Filey Bay, *Coode* 735, 736—Is not intimately acquainted with the coast north of Scarborough, but has very minutely examined Filey Bay and its neighbourhood, *ib.* 737-741—Filey Bay possesses very great and peculiar capabilities for a harbour of refuge; it is capable of affording much more shelter than is contemplated in witness's plan, *ib.* 742, 743—Witness has only recently reported upon the eligibility of Filey, having been locally employed to examine into the matter since the sitting of the Committee in 1857, *ib.* 744-749.

Possibility of vessels caught in a south-easterly gale north of Filey, being able to reach a harbour there, *Coode* 759-762—Absence of difficulty in making the harbour in a south-east gale, unless the vessels are too far north, *ib.* 772-775. 807—The risk in bringing up under Speeton Cliff, would be obviated by a refuge in Filey Bay, *ib.* 781, 782—The question of a harbour at Filey was discussed in 1852, and was favourably reported upon by a Committee of the House in 1836; *ib.* 790-792—The fact of Filey not being a trade port, is an argument in favour, rather than otherwise, of its eligibility for a harbour of refuge, *ib.* 794, 795. 833.

There



Report, 1857-8—continued.

*FILEY BAY*—continued.1. *Generally as to the great Advantages of Filey Bay, &c.*—continued.

There is railway and telegraphic communication with Filey, *Coode* 796—Although Filey is from six to seven miles distant from the more salient point of Flamborough Head, it is the nearest eligible point to the greatest point of danger, and a harbour of refuge there would save more lives than a harbour elsewhere along the coast, *ib.* 798-801. 809-813. 838—Harbours of refuge at Hartlepool, the Tyne, and North Tees, would still not obviate the necessity of one at Filey, *ib.* 830, 831—Advantages of Filey over Hartlepool in being thirty-six miles more eastward, *ib.* 839, 840—Avoidance of collisions off Flamborough Head if there were a place of refuge at Filey, *ib.* 877-879.

Letter from Mr. Coode to the Chairman of the Committee, dated 31st March 1858, referring to the large proportion of wrecks in the case of laden colliers as strengthening the claims of Filey Bay as the best site for a harbour of refuge, *App. p.* 219.

2. *Its Advantage as a Naval Station :*

Witness examined Filey Bay most minutely some years ago, with reference to its capabilities for a naval station, for which he considers it admirably adapted, *Sir J. C. Ross* 552-554—The salient position is very important for purposes of defence, *ib.* 633-635. 681—In approving of Filey Bay for a naval station in time of war, witness contemplates that a steam squadron should be stationed there, *ib.* 727-729—Special importance of the position of Filey with reference to national defence, *Coode* 812. 838. 905.

3. *Views of Captains of Vessels in favour of a Harbour of Refuge at Filey, rather than elsewhere on the Coast :*

The captain of a vessel plying between London and Leith, who has been on the route for 40 years, spoke to witness in favour of Filey Bay for a harbour; course of such a vessel as compared with one from London to the coal ports, *Henderson* 486-489. 497-503—Belief that ninety-nine masters of colliers out of 100 would bear out witness's conclusion that Filey Bay is the best site for a harbour, *Coode* 832—Reference to a petition, very numerous signed by masters and mates, in favour of Filey Bay as the best point for a harbour of refuge, *ib.* 890, 891.

Witness, who is a master mariner, is decidedly in favour of Filey Bay as the most eligible place on the coast for a harbour of refuge, *Clark* 936 *et seq.*; *Coston* 1079 *et seq.*; *Best* 2817 *et seq.*—Greater facility in making Filey than Hartlepool when the wind is from certain points, *Clark* 939-951, 1007-1011—Witness is a native of Bridlington, and is altogether disinterested in recommending a harbour at Filey, *ib.* 974, 975—In a south-easterly gale, vessels from Flamborough Head could keep the sea, but would rather make for a harbour at Filey, *ib.* 977-985. 1019-1021. 1046.

Usefulness of a harbour at Filey, in the case of vessels caught in a north-east gale north of that place, *Coston* 1108-1112—Greater availableness of a harbour at Filey than at Hartlepool, or in Tees Bay, *ib.* 1132-1140—The great majority of the masters of colliers prefer a harbour of refuge at Filey to one at any other place, *Best* 2819, 2820. 2832, 2833—Advantage of a harbour at Filey over one at Hartlepool, for the coal vessels as well as for vessels from the Baltic, *ib.* 2825, 2826. 2834-2837. 2855-2857. 2867—With a harbour of refuge at Filey Bay, there would be no pressing want for another between the coal ports and the Thames, *ib.* 2843-2846.

4. *Nature of the Works proposed; Facilities of Construction :*

Suggestions as to the length and position of the breakwater necessary to make Filey Bay a harbour of refuge, *Sir J. C. Ross* 556-559. 562-569. 624-626—Much more extended breakwater required for a naval station than a harbour of refuge, *ib.* 557. 559. 566—Peculiar facilities in regard to the provision of material for the proposed breakwater, *ib.* 577-580. 608, 609. 689, 690—The removal of the material for the breakwater would at the same time give a space for Government works, *ib.* 613-615—Firm site for the proposed breakwater, *ib.* 684-688.

Peculiar facilities for the provision and laying down of the material for the breakwater, *Coode* 762-764. 814, 815—The total length of the breakwater proposed by witness is 9,600 feet, *ib.* 765, 766—Acreage and depth of anchorage to be given in the proposed harbour, *ib.* 767-771—Shelter would be given from every wind that blows, *ib.* 767. 904—The mode of construction proposed is to bring up the rough deposit to about 15 feet under low water and thereon to build a vertical wall, *ib.* 814.

5. *Cost, as estimated by Mr. Coode :*

Estimate of 860,000 *l.* as the cost of the proposed breakwater, *Coode* 813-816. 859-865 and *Sup. App. p.* 7, 8.



Report, 1857-8—continued.

FILEY BAY—continued.

6. Report by Mr. Coode in January 1858.

Copy of Mr. Coode's Report, dated January 1858; details therein as to the advantages of the proposed site; the mode of construction, cost, &c.

7. Views of the Committee; Importance attached to the Site:

The arguments put forward in favour of Filey Bay as the most eligible site on the north-east coast are considered by the Committee to be well worthy of further investigation before any decision is arrived at in favour of a harbour elsewhere on the north-east coast, *Rep. p. vii.*

See also *Baltic Trade. England, North-east Coast of. Flamborough Head. Foundering.*

*Fishguard.* Advantage if there were a harbour of refuge at Fishguard; *Sheringham* 1265—A breakwater at Fishguard would have saved many wrecks, *Claxton* 1875—For sundry reasons Fishguard Bay is the best place between Milford Haven and Holyhead for a harbour of refuge, *Harris* 3473-3512—Refuge would largely be taken in Fishguard Bay by vessels caught in gales from the north-west to the north-east, *ib.* 3474-3477—It is proposed to erect a breakwater over the Cow and Calf, at an estimated cost of 75,000 *l.*; excellent accommodation thereby, *ib.* 3478-3487—In 1846 sixteen vessels were lost in the Bay, which would have been saved had there been a harbour of refuge, *ib.* 3488-3492—Advantage of Fishguard over St. Tudwall's Roads, *ib.* 3495-3500.

*Fishing Trade (Scotland).* See *Wick.*

*Flamborough Head.* Much larger proportion of collisions off Flamborough Head than other parts of the coast, *Sir J. C. Ross* 586-588. 653-662; *Coode* 755, 756—The north-east wind causes most wrecks on the coast about Flamborough Head, *Sir J. C. Ross* 709—Flamborough Head is the south headland of Filey Bay, and is from six to seven miles distant, and about three miles more seaward, *Coode* 751. 798-810. 825-827—Explanation of the great accumulation at times of laden vessels under Flamborough Head; witness has seen 300 there, and has heard of there having been 750 at one time under Speeton Cliff in Filey Bay, *ib.* 778-786. 842-846.

Grounds for the conclusion that a great majority of wrecks on the coast, north of Flamborough Head, occur through laden vessels being driven back from that point by southerly or south-easterly gales, *Coode* 783-786. 817. 828, 829. 845, 846. 877-879. 889-891; *Clark* 930 *et seq.*; *Coston* 1053-1060. 1086 *et seq.*; *Best* 2814-2816—Instances of vessels having been driven to and fro between Flamborough Head and Leith Roads for want of a harbour of refuge near the former place, *Coode* 784-786. 895-897—Obstacle to a harbour of refuge at the Head, *ib.* 825. 887-889.

Colliers generally leave their ports in fleets, and in the great majority of cases get as far as Flamborough Head or Filey Bay, *Clark* 916-919. 940-944; *Coston* 1086-1095. 1102—Witness has been off Flamborough Head when there have been from 300 to 400 vessels detained there by contrary winds; *Clark* 916. 964. 997-1000—Shelter from southerly gales under the Head, *ib.* 920-924. 997-1000—Danger to vessels detained under the Head when a gale comes from the east, or east by north, or south-east, *ib.* 925-930. 946. 971-973—Frequent loss by collision off Flamborough Head, *Clark* 934. 964, 965; *Coston* 1099.

Circumstance of witness having been driven back from Flamborough Head to Hartlepool three times in one voyage; many vessels at the same time were driven to Leith Roads, *Clark* 956-959. 976. 1002-1006—Cross sea in passing the Head, *ib.* 991, 992. 1000—The neighbourhood of the Head is the most dangerous part between Newcastle and Lynn, *Coston* 1052—With a south-east wind there is no protection under the Head, *ib.* 1100.

See also *England, North-east Coast of: Filey Bay.*

*Forward, Thomas Roundell.* (Analysis of his Evidence.)—Commands the "Sylvia," cruiser; has had eleven years experience of the coast from Bristol to the Land's End, 1328-1335—Special danger of the coast between Cape Cornwall and Trevoze Head, 1336—Evidence in favour of St. Ives as the best site for a harbour of refuge for vessels going up and down the Bristol Channel, 1337 *et seq.*—Unsafe anchorage at Padstow; the ground is all sand, 1340. 1432, 1433—Excellent anchorage at St. Ives, 1341—Nature of the winds most dangerous on the coast, 1343-1345. 1355—Considerable losses take place on the coast above Lundy Island, 1346, 1347.

Excellent protection to be afforded in St. Ives Bay, if there were a breakwater thrown out from St. Ives Head, 1353-1360. 1367-1371. 1421-1443—Numerous losses in the upper part of the Bristol Channel from the necessity of running there in foggy weather, 1358-1360—On some occasions witness has run for shelter to the Mumbles in Swansea Bay, 1361, 1362—Witness has only twice taken refuge in Padstow, the entrance to that harbour being exceedingly narrow and dangerous, and the anchorage being very unsafe, 1363-1366. 1422. 1428-1433—Witness has taken refuge at St. Ives 500 or 600 times, 1368.

Considerations

*Forward, Thomas Roundell. (Analysis of his Evidence)—continued.*

Considerations as to the best shelter for vessels not able to make St. Ives, and obliged to run up the Bristol Channel in a gale; the Mumbles are the best site for a harbour of refuge for these vessels, 1372 *et seq.*—A breakwater from Stepper Point, outside Padstow, would not be effectual in rendering the harbour largely available, 1400-1403. 1441, 1442—Poor shelter in Clovelly Roads when the wind is west-north-west, 1410, 1411—Between Hartland Point and St. Ives the coast is very dangerous, 1413-1418—Refuge at St. Ives, if there were a breakwater there, to vessels from Liverpool caught in a westerly gale, 1434-1436—The majority of vessels lost in the Bristol Channel are forced up by the gales, 1444-1446.

*Foundering.* Doubt as to the proposed harbour at Filey being of much use in preventing founderings which now occur at some distance off the coast, *Coode* 880-886.

*Foyle and Swilly, Loughs.* Lough Foyle and Lough Swilly are safe harbours, but are very difficult of access, *Sir J. Burgoyne* 2177; *Evans* 2256, 2257. 2286-2300; *Sir J. Dombraïn* 2317-2327. 2356, 2357. 2383-2386. 2393-2395; *Cumming* 2471, 2472. 2498; *Gibbons* 2569; *Hamilton* 3094, 3095.

*Fraserburgh (East Coast of Scotland).* There is no protection from north-east gales at Fraserburgh, *Stevenson* 257—Witness has surveyed the harbour of Fraserburgh, and has furnished designs for its improvement and extension, *Abernethy* 3111-3113—By extending the present north pier of Fraserburgh, 1,400 feet shelter would be afforded from the north-east wind, there being already protection from southerly and south-easterly gales, *ib.*, 3114-3116. 3121. 3125. 3141-3148. 3151—Area and depth of shelter to be supplied by the proposed extension of the pier; it is not intended to accommodate large ships, *ib.* 3116. 3121. 3125-3133. 3149-3159. 3190, 3191—Estimate of 80,000 *l.* as the cost of the proposed extension of the existing works, *ib.* 3117, 3118. 3130. 3135-3139. 3205—Facilities for obtaining excellent material for the construction of the pier, *ib.* 3119. 3172-3174.

The harbour would be easily accessible at all times, *Abernethy* 3122—Shelter afforded by the existing works; these have cost 50,000 *l.* *ib.* 3125. 3137—At present no vessels can run for the harbour at low water, *ib.* 3143-3145—The coasting vessels along the coast from Moray Firth to Buchan Ness would be chiefly benefited, *ib.* 3153—Greatly increased accommodation to be given by extending the pier double as far as witness proposes; costly and tedious character of such further extension, *ib.* 3157, 3158. 3192-3196.

A portion of the works first executed was breached by the sea, but the repairing of it was not very expensive, *Abernethy* 3169-3171—Larger and better materials proposed to be used by witness than was at first used, *ib.* 3172-3174—Except in northerly or north-easterly gales the proposed extension could be carried on, *ib.* 3175-3179—System of construction proposed; necessarily long time required, *ib.* 3180-3189—Good character of the bottom on which the pier would be founded; the action of the North Sea need not be apprehended, *ib.* 3197-3205—Explanation as to witness not having been favourable for a few years to the construction of a pier at Fraserburgh, *ib.* 3206-3212.

Paper delivered in by Mr. Abernethy containing sundry statistics as to the harbour, its trade, &c., *App. p.* 220-222.

## G.

*Gotling, Robert. (Analysis of his Evidence.)—Harbour-master of the Port of Newport:* is a pilot commissioner, and is well acquainted with the Bristol Channel, 3641-3644—Considers that Lundy Island is the best place in the channel for a harbour of refuge, 3645 *et seq.*—Objection to a harbour of refuge at the Mumbles on account of the sandbanks there, and the objection of masters of vessels to run for it, 3646. 3650, 3651. 3670-3672. 3701-3715. 3770—Next to Lundy, Clovelly is the best site in the channel for a harbour of refuge, 3649.

Witness has no interest either in Lundy or Swansea as the site for a harbour, but decidedly prefers the former site, 3650 *et seq.*—Free ingress and egress for vessels if a breakwater were made at Lundy, 3656, 3657. 3679-3682. 3694-3700—Reference to a return showing the tonnage of the ports of the Bristol Channel; the tonnage is one-tenth, and the number of vessels one-sixth of all the ports in the kingdom, 3659-3667. 3769—Vessels from Cardiff, Newport, and other places avoid the dangers of the north shore as much as possible, whilst there are no such dangers on the south shore or in making for Lundy, 3668-3674. 3722-3727. 3742-3747. 3756-3758.

A harbour of refuge at St. Ives would be too far off for the trade of the Bristol Channel, 3675-3678. 3761-3765—Lundy Island is far preferable to St. Ives, 3679. 3761-3765—The opinion of the trade generally of the Bristol Channel is in favour of Lundy as the site for a harbour, 3683, 3684. 3741. 3766-3768—Probable prevention of many wrecks by a harbour at Lundy, 3687-3693—Shelter at present at Lundy from westerly gales only, 3694-3700—Advantage of a refuge at the Mumbles in the case of small vessels which run back to Penarth Roads, 3706-3721. 3748-3752—The depth of water outside Lundy is too great for small vessels to anchor in, 3728-3740—Probable cost 0.36.

## Report, 1857-8—continued.

of the proposed harbour; accommodation to be given, 3753-3755—Constant detention of vessels in different parts of the channel for want of a proper harbour at Lundy, 3770.

**Gibbons, Barry D.** (Analysis of his Evidence.)—Engineer for harbours, &c. under the Board of Works, Ireland; knows the Irish coast intimately, 2513-2517—The Skerries at Portrush present peculiar facilities for the formation of a harbour of refuge, 2518-2520. 2569—There is an excellent supply of material, easily available, 2520-2524. 2559-2561—Certain works proposed at the Skerries, and which would afford great protection, could be executed for 100,000 *l.*, 2525-2535. 2562-2566—Plan of construction proposed; natural aid already supplied, 2528-2547.

For many reasons Portrush is the most eligible spot on the north of Ireland for a harbour, 2543. 2569-2577—Advantage of a curtailment of the open space between the Great and Little Skerries; this might be done for an increased cost of 20,000 *l.* or 30,000 *l.*, 2544-2547. 2566-2561—There is no danger of the roadstead silting up, 2548-2551—Considerable shelter under the Great Skerries, 2552, 2553—Objection to the entrance being between the Lesser Skerries and the shore, 2554, 2555—The works might be finished in two years, 2567, 2568—Kingstown Harbour is very easy of access in an east-north-east wind; the entrance is too wide rather than otherwise, 2578, 2579.

**Glasgow Trade.** See *Ireland, Coasts of.* Portrush.

<b>Grants of Public Money.</b> See <i>Carlingford.</i>	<b>Costs.</b>	<b>Filey Bay,</b> 5, 6.	<b>Land's</b>
<b>End to Hartland Point.</b> <i>Passing Tolls.</i>	<b>Portrush,</b> 4, 6.	<b>Self-supporting Har-</b>	
<b>bours.</b> <i>Tidal and Trading Harbours.</i>	<b>Value of Land.</b>	<b>Waterford.</b>	<b>Wexford.</b>
<b>Wick,</b> 3, 6.			

## H.

**Hamilton, William.** (Analysis of his Evidence.)—Has been in command of vessels in the Liverpool foreign trade for twenty-two years, 3011-3014—Has generally gone south-about when outward bound from Liverpool, 3015, 3016. 3063-3070. 3088-3093—Both for the outward bound and inward bound trade of Liverpool a harbour of refuge at Carlingford Lough on the Irish coast would be particularly useful, 3017-3022. 3035-3041. 3104—On the south coast of Ireland Waterford is the best situation for a harbour of refuge, 3023-3026—On the Welsh coast St. Tudwall's Roads are a very good locality for a harbour of refuge for ships going south from Liverpool, 3027-3029. 3058, 3059.

Liverpool masters as a rule prefer the south channel, and would not be induced to go north-about by a harbour of refuge at Portrush, 3030-3032. 3063-3083. 3096. 3105—The Clyde masters usually go by the north channel, and a harbour at Portrush would be a very great advantage to all such vessels, 3032. 3078-3087—A harbour of refuge at the Isle of Man would be useful only for small vessels, 3033, 3034—Kingstown Harbour is accessible in a south-east gale, but there is a great risk in taking large ships into it, 3035-3041.

In going round the north of Scotland witness prefers the passage through Pentland Firth, 3042-3045—The Orkneys supply good natural harbours, 3046-3048—North of Liverpool a harbour of refuge would be very useful at Pielfendry, inside Walney Island, 3050-3057—Harbours are required in the Bristol Channel, Caldy Island being a good situation for one, 3058-3062—Reasons for Liverpool masters preferring the south channel, 3071-3077. 3097, 3098—Risk in taking large vessels through the entrance to Lough Foyle, 3094, 3095—Holyhead Harbour is not of much use to the Liverpool trade, except to steamers, 3099-3103.

**Harris, John.** (Analysis of his Evidence.)—Has been a captain in the merchant service; is well acquainted with the Welsh coast, 3452-3458—Is now receiver of wrecks under the Board of Trade, 3459-3461—Great in-draught of water in Cardigan Bay, 3463-3466—The greatest number of wrecks on the coast occur between Newport Bay and St. David's Head; official list hereon, 3467-3470—Between Holyhead and Milford Haven there is no place of refuge in a westerly gale, 3471, 3472—For sundry reasons Fishguard Bay is the best place between Milford Haven and Holyhead for a harbour of refuge, 3473-3512.

**Hartland Point.** Hartland Point is the place where vessels leaving the Bristol Channel, mostly experience difficulty, *Gething* 3763-3765.

See also *Barnstaple Bay.* *Land's End to Hartland Point.*

**Hartlepool.** Objection to Hartlepool as a site for a harbour of refuge, on account of its being so deep in the bay, *Henderson* 407-423—Necessity of a harbour of refuge at Hartlepool, or near that place, as well as at Filey Bay; opinion, however, that it would not prevent so many wrecks as one at Filey, *Sir J. C. Ross* 589. 594. 595. 616-622. 631. 632. 646-652. 663-667. 691-698. 714-724—Witness cannot speak to the reputed fact, that Hartlepool Bay is silting up, *ib.* 718-721.

Belief as to the silting up of Hartlepool harbour, *Coode* 787, 788. 899-903—Difficulty of vessels taking shelter at Hartlepool on account of the low depth of water; when they

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*Hartlepool*—continued.

they cannot make Filey Bay in a southerly gale, they must go on to the Firth of Forth, *Coode* 892-897—Obstacle to keeping up a proper depth within a breakwater at Hartlepool, on account of the accumulation of sand, *ib.* 898-903.

Disposition of Hartlepool to silt up, *Clark* 966-968. 1037-1043—Low depth of water in the bay, *Best* 2854. 2868-2871.

Reference by the Committee to the influential evidence given in 1857, in favour of Hartlepool as the most eligible site on the north-east coast, *Rep.* p. vii.

See also *Departure Ports.* *Filey Bay.*

*Hays, William Bennett.* (Analysis of his Evidence.)—Produces a model, and illustrates therefrom the advantages of a new kind of breakwater invented by himself, 3954-3959-3969—One of these breakwaters is being erected in South Australia, and the principle has been tried successfully on a small scale in the Bristol Channel, 3955-3957. 3960-3962—Small cost and easy construction of breakwater on the plan in question, 3959. 3963.

The proposed breakwater consists essentially of a number of parallel plates of iron inclined at an angle of 55 or 60 degrees, with the horizon towards the sea, 3959—The plates are framed together in certain lengths, and supported upon bags, or piles of wrought iron; how these piles might be fixed, 3959. 3966-3968—Position and action of the plates explained; there would be an almost entire neutralisation of the forces of the wave, and the area of water within the plates would at all times be sufficiently still for all purposes required in a harbour of refuge, 3959. 3961. 3964. 3965.

*Henderson, Captain James, R.N.* (Analysis of his Evidence.)—Considerable experience of witness as to the east and north-east coast of Scotland, 265-271—The harbours in the Orkneys are natural harbours of refuge, 272—A harbour of refuge is desirable at Wick, for fishing vessels, but not for anything beyond that, 273-276—In a strong westerly wind vessels do not go through Pentland Firth, and they make for the Orkneys rather than for Wick, 277-280—There is considerable difficulty at times in getting up the Firth of Cromarty on account of the contrary winds, 281-286.

Prevention of loss of life, if there had been a harbour of refuge at Peterhead on occasions of violent changes in the wind, 287-290—Vessels from the south to Archangel would take refuge at Peterhead and not at Wick, 291, 292—Vessels would rarely or never make for Wick if there were a refuge at Peterhead as well as at the Orkneys and in Pentland Firth, 291-293. 297—Difficulty in getting into Wick in a strong westerly wind, and of getting out in an easterly wind, 294-296.

Increased resort to Peterhead of vessels going to or from the Baltic or Archangel, if there were a harbour of refuge there, 298-300. 392, 393—The northern bay at Peterhead is the preferable one for a harbour of refuge, 301, 302—Peterhead possesses greater claims to a harbour of refuge or a naval station than Wick, or any other place on the east coast of Scotland, 303 *et seq.* 406—In advocating the claims of Peterhead witness explains that he has no connexion with the place, 304. 327, 328.

Docks and a double harbour might be made at Peterhead, but they would be very expensive, 309. 331-337—Facility for fortifying Peterhead, 310. 383-386—Probable reason of the great diminution since 1850 in the number of vessels passing Buchan Ness Lighthouse, 316-318—Ships generally go through the Pentland Firth rather than outside the Orkneys, 338-340. 376-379—Vessels going north and overtaken in a gale to the east of Peterhead would make for the Orkneys or Shetland, rather than for Wick or Peterhead, 341-354.

Advantages of prominent or salient points over bights of bays as localities for harbours of refuge, 355-361. 490-495—Good shelter if there were a breakwater at a certain point just off Buchan Ness Lighthouse, 362-370—Doubt whether the conformation of Wick Bay admits of a large and safe harbour there, 380-382—Danger at times to the Wick fishing vessels for which a harbour at Peterhead would not at all provide, 387-389—Probability if there were a harbour at Peterhead of large merchant vessels, as well as vessels of war, resorting thither, 390-399—Importance of Wick as a fishing station, 402-405.

Objection to Hartlepool as a site for a harbour of refuge on account of its being so deep in the bay, 407. 423—Evidence in favour of Filey Bay as the best site on the north-east coast of England for a harbour of refuge, on account of the salient position of Flamborough Head, 407-413. 416-423. 449. 471-503—The advantage of Filey Bay chiefly consists in the facility of getting out of it, 409.

Considerable importance of a harbour of refuge at St. Ives Bay; circumstances under which a harbour there would be most useful, 414, 415. 424-448. 456-470—Accessibility of Milford Haven as a place of refuge, 415. 496—Probability of vessels caught in certain gales off the coal ports making for a harbour at Filey, 416. 419. 475-480—The chief advantage of Holyhead Harbour is its salient position, 450-452—The English Channel is now well provided with harbours of refuge, 453-455

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*Holyhead.* The chief advantage of Holyhead new harbour is its salient position, *Henderson* 450-452—Respects in which witness objects to the site of the harbour, *Sheringham* 1245, 1246, 1317, 1318—Usefulness of the harbour, *Thompson* 2963-2966—The harbour is not of much use to the Liverpool trade, except to steamers, *Hamilton* 3099-3103.

*Holywell (Cornwall).* Reference to the contemplated construction by a private company of a pier and breakwater at Holywell; propriety of Government assistance in the matter, *Claxton* 1727, 1728, 1898-1901—Plan for an extension of some works about to be made at Holywell by a private company, *ib.* 3522.

*Hoskyn, R.* Remarks by Mr. Hoskyn, dated 9 December 1857, as to the facilities afforded by the Skerries at Portrush for forming a harbour of refuge there, *App. p.* 225.

## I.

*Ireland, Coasts of.* Greater dangers of the southern passage than of the northern passage to vessels from Liverpool, &c. *Sir J. Dombain* 2343, 2344, 2366-2373—The fogs that prevail in the Channel off Belfast are a great cause of loss, *ib.* 2359, 2360, 2371—Considerable danger on the north coast of Ireland when vessels are caught in a north-west gale, *M'Kellar* 2400-2409—Many vessels have been lost on the north-east and north-west coasts, *ib.* 2418—From the Clyde to any of the American ports the northern passage is the shorter, *M'Kellar and Cumming* 2421, 2437, 2438.

Both from Liverpool and Glasgow vessels to Canada would go by the north channel if the wind were south or south-west, *Cumming* 2433-2438, 2504-2511—Belief that the Glasgow traders generally would rather have a harbour on the north coast than any other part of Ireland, *ib.* 2464, 2465—The trade from Glasgow to the West Indies or the Mediterranean chiefly goes south, as being the shortest passage, *ib.* 2473-2476—The chief danger of the north passage is in a north-west wind, *ib.* 2477, 2478—There is some danger in the navigation of the coast near Belfast, *ib.* 2500-2502—With a northerly or north-easterly wind vessels from Liverpool would go south-about, *ib.* 2503, 2512.

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*Iron Breakwaters.* Witness produces a model and illustrates therefrom the advantages of a new kind of breakwater, invented by himself, *Hays* 3954, 3959-3969—One of these breakwaters is being erected in South Australia, and the principle has been tried successfully, on a small scale, in the Bristol Channel, *Hays* 3965-3967, 3960-3962—Small cost and easy construction of breakwater on the plan in question, *ib.* 3959, 3963—The proposed breakwater consists essentially of a number of parallel plates of iron inclined at an angle of 55 or 60 degrees with the horizon towards the sea, *ib.* 3959—The plates are framed together in certain lengths and supported upon bags or piles of wrought iron; how these piles might be fixed, *ib.* 3959, 3966-3986—Position and action of the plates explained; there would be an almost entire neutralisation of the forces of the wave, and the area of water within the plates would at all times be sufficiently still for all purposes required in harbour of refuge, *ib.* 3959-3961, 3964, 3965.

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*Jackson, R. Ward.* Letter from Mr. Jackson to Lord Adolphus Vane Tempest, dated 8 May 1858, with reference to the number of wrecks and casualties at different points along the east coast, as affecting the claims of different places to a harbour of refuge, *App. p.* 229, 230.

*James, David.* (Analysis of his Evidence.)—Surveyor for Lloyd's on the coast of Cardigan; has long been intimate with the coast from Holyhead to Milford Haven, 3338-3345—Wrecks often occur inside Kemes Head, on the sands of Cardigan Bay, 3346-3348, 3379-3383

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3379-3383—Between Milford Haven and Holyhead the best place for a harbour of refuge is inside of Kemess Head, in Cardigan Bay, 3349 *et seq.*—Advantages of a harbour of refuge at Kemess Head over one at St. Tudwall's Roads, as well as over one at any other place on the same section of the coast, 3363-3372. 3384-3392—The proposed breakwater at Cardigan would provide about 20 acres available for refuge, 3373-3378.

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*Kemess Head (Cardigan).* A breakwater off Kemess Head, in Cardigan Bay, would be a great blessing, *Claxton* 1823—Kemess Head is a more desirable place than Fishguard for a harbour of refuge; its advantages, *ib.* 1875. 1918-1920.

Wrecks frequently occur inside Kemess Head on the sands of Cardigan Bay, *James* 3346-3348. 3379-3383—Between Milford Haven and Holyhead the best place for a harbour of refuge is inside of Kemess Head, *ib.* 3349 *et seq.*—Advantages of a harbour of refuge at Kemess Head over one at Fishguard, St. Tudwall's Roads, or any other place on the same section of the coast, *ib.* 3356-3372. 3384-3392—The proposed breakwater would provide about 20 acres available for refuge, *ib.* 3373-3378.

Between Milford Haven and Holyhead the best site for a harbour of refuge is inside of Kemess Head in Cardigan Bay, *Bowen* 3399 *et seq.*—Advantages of Kemess Head over St. Tudwall's Roads and other places on the same coast as the site for a harbour, *ib.* 3400-3408. 3426-3442—The anchorage in the harbour would be very good, *ib.* 3411, 3412—The harbour would be useful for all vessels as well as coasters, *ib.* 3414-3416. 3426-3433—The proposed harbour would be a great boon to vessels from Liverpool, *ib.* 3422-3425.

*King Road (Bristol Channel).* See *Bristol Channel*.

*Kingstown (Dublin).* Kingstown Harbour is very easy of access in an east-north-east wind; the entrance is too wide rather than otherwise, *Gibbons* 2578, 2579—The harbour is accessible in a south-east gale, but there is great risk in taking large ships into it, *Hamilton* 3035-3041.

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*Laden Vessels.* Statement that the loss of laden colliers, as compared with light ones, off Flamborough Head, &c., is as four to one; explanation hereon, *Sir J. C. Ross* 585-588. 668-671. 699, 700. 725, 726; *Coode* 802. 846—Much greater risk of loss by foundering in the case of laden vessels than of light vessels, *Coode* 753-757. 867—Statement showing that the loss of life is ten times as great in the case of vessels in cargo as of vessels in ballast, between the Tyne and Flamborough Head, *ib.* 756-758—Explanation that the numerous wrecks near Sunderland are those of laden vessels, driven back thither for want of a harbour to the south, *ib.* 846.

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*Land's End to Hartland Point.* The coast between the Land's and Hartland Point is especially dangerous, *Sheringham* 1153-1155; *Forward* 1413-1418—Large vessels going down the Bristol Channel or the Irish Sea would hardly make for a harbour of refuge on the Cornwall Coast, *Sheringham* 1158. 1275—Nature of the winds most dangerous on the coast about St. Ives, &c., *Forward* 1343-1345. 1355—Sundry points on the coast which have been suggested for harbours of refuge, *Bryant* 1455—Intermittent character of the casualties on the coast of Cornwall, *ib.* 1580.

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Reference by the Committee to the want of a harbour of refuge at St. Ives or Padstow, on account of small coasting vessels, *Rep.* p. vii, viii.

See also *Bristol Channel*. *Padstow*. *St. Ives*.

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*Lighthouse Dues.* Expediency of dues or tolls being paid for harbours of refuge as for lighthouses, *Rep. p. x, xi.*

*Liverpool Trade.* See *Ireland, Coasts of.* *Portrush.*

*Long Hope.* In time of war Long Hope would naturally be a naval station as well as Peterhead, *Moody* 526, 527.

*Loss of Life.* Belief as to the greatest number of lives as well as wrecks occurring in the case of small vessels locally lost, *Sheringham* 1270-1272—Comparative statement of the loss of life between Flamborough Head and St. Albans Head, and between Portsmouth and Dover; explanation thereon, *Walker* 3779-3785. 3827, 3828. 3832, 3833.

Total of 4,148 persons who have lost their lives in the five years, 1852-1856 *Rep. p. iv.*—The proposed harbours of refuge would probably save a larger proportion of lives than of property, *ib. x.*

*Loss of Property.* See *Wrecks and Casualties.*

*Lowery, Thomas.* (Analysis of his Evidence.)—Trinity-house pilot; is engaged chiefly in the English Channel, 2115-2118—Considers that between Plymouth and the Downs there is no urgent demand for any further harbour of refuge, 2119-2121. 2132, 2133. 2141, 2142—The Downs are the great resort for vessels caught in the Channel in a south-west gale, as well as for vessels from the North Sea, &c. but there is great want of shelter there, 2121-2124. 2143-2150—A most extensive and most safe harbour might be formed at the Downs within the limits of the Brake; position and nature of the break-water required; the expense would probably be very great, 2122-2135. 2152-2154.

Doubt whether Dover Harbour can ever accommodate the large vessels that might be accommodated in the Downs, 2124. 2143-2147. 2151, 2152—Harbours of refuge are urgently required on the north-east coast, 2136-2138—The wrecks on the south coast are chiefly through collision off Beachy Head, 2139, 2140—Considerable expense of improving the tidal harbours of the south coast, 2148—Large resort of vessels to Yarmouth Roads, although by no means a safe refuge, 2155-2163—The sand-banks at the Downs have varied very little, 2164—One of the old channels to the Yarmouth Roads is now closed up, 2165, 2166—The passage leading to Lowestoft Harbour is not at all fit for large vessels, 2167, 2168.

*Lowestoft.* The passage leading to Lowestoft Harbour is not at all fit for large vessels, *Lowery* 2167, 2168.

Witness superintended the construction of Lowestoft Harbour, *Sir S. M. Peto* 3217, 3218—Hands in a chart of the coast adjoining Lowestoft, and a plan of the harbour, *ib.* 3219—There are two piers, one 100 feet long, and the other 1,250 feet, the width of the entrance being 150 feet, *ib.*—The outer harbour is easy of access at all times, and has been the means of saving many disabled vessels, *ib.* 3222. 3245. 3261, 3262. 3277. 3304, 3305. 3336, 3337—The sand-banks afford considerable protection from the sea, *ib.* 3222-3226. 3254, 3255—Very large traffic passing outside Lowestoft, and large number of fishing and other vessels taking refuge in the harbour; statistics hereon, *ib.* 3223, 3224. 3233-3237. 3247-3253. 3283, 3284. 3300-3305. 3318—Yarmouth and Lowestoft Roads may be considered as one, *ib.* 3225.

Inadequacy of the inner harbour at Lowestoft to meet the demands upon it for shelter; large number of vessels which at times are necessarily refused a refuge for want of space, *Sir S. M. Peto* 3227-3232. 3258-3263. 3285-3289—On an average more than 600 vessels a year take refuge in the harbour, *ib.* 3235-3237. 3283—There are not many wrecks immediately off the harbour, *ib.* 3238.

Suggestion that a space of about eight acres called Kirkley Ham, in the inner harbour, be dredged, and be applied solely to purposes of refuge; this would accommodate 300 additional vessels in the coasting trade, and might be done for from 35,000 *l.* to 45,000 *l.*, *Sir S. M. Peto* 3239-3243. 3263-3282. 3295-3299. 3300. 3311—The outer harbour does not require any expenditure for purposes of refuge, *ib.* 3239. 3244-3246. 3277. 3318—Occasional inadequacy of the protection afforded in the roadstead, *ib.* 3255. 3278-3280. 3290-3294. 3315—Increased losses at Lowestoft from collision, since the increased resort of screw steamers to the harbour, *ib.* 3256, 3257.

There is no bar at Lowestoft, and the depth across the entrance to the outer harbour is from 19 to 20 feet at dead low water, *Sir S. M. Peto* 3306-3308. 3317. 3329, 3330—The inner and outer harbours are dredged for about 350 *l.* a year, and there has been no silting up, *ib.* 3308, 3309. 3331-3333. 3335—Mention of several high professional authorities as favourable to Lowestoft harbour, *ib.* 3314—There would be no difficulty of keeping up the proper depth by dredging annually, *ib.* 3316-3333—The average silt is only an inch a year, and is quite uniform, *ib.* 3319. 3327.

There is a charge of 2 *d.* a ton on vessels using the harbour for refuge, which would be ample to pay for the dredging, *Sir S. M. Peto* 3321—Failure of the original harbour, which cost about 200,000 *l.*; purchase of the works by the Norfolk Railway Company, *ib.*

3334, 3336



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*Lowestoft*—continued.

3334, 3335—Papers delivered in (*App. p. 211-214*) containing statistics showing the trade of the port, and the efficiency of the harbour for general purposes, *Sir S. M. Peto* 3336, 3337.

Number and value of vessels and cargo coming into the harbour for refuge, and in crippled and disabled states, during the three years previous to the formation of the outer harbour (1844-1846), and during the subsequent years, *App. p. 211*—Particulars as to vessels compelled to pass Yarmouth harbour and to take refuge at Lowestoft, from January 1855 to March 1856, *ib. 212*—Sundry statistics relative to the trade of the port in each of the years 1852-1855, *ib.*

Number of vessels which have taken refuge in the harbour during each of the years 1852-1857, *App. p. 213*—Number of anchors salvaged in roadstead since October 1855, *ib. 213*—Statement showing the shipping trade during each of the years 1852-1857, *ib. 213, 214.*

*Lundy Island (Bristol Channel).* Considerable shelter afforded by the roadstead at Lundy, *Sheringham* 1323-1327—Many losses take place on the coast above Lundy Island, *Forward* 1346, 1347—Drawbacks upon Lundy as the site for a place of refuge, *Forward* 1389-1391; *Samson* 1634-1639.

A harbour at Lundy Island would be of the most service to the foreign trade, and large vessels from Bristol, *Claxton* 1749. 1935-1938—An outlay of about 300,000 *l.* at Lundy Island, would provide protection for six or seven dozens of small vessels, and for seven or eight large vessels, *ib. 1768-1775. 1910*—Lundy Island is the best place for a harbour in the lower part of the Channel, as the Mumbles is the best place higher up the Channel, *ib. 1791.*

Witness considers that in the Bristol Channel Lundy Island is by far the best place for a harbour of refuge, *Drew* 3530 *et seq.*; *Gething* 3645 *et seq.*—Lundy would be easily accessible in all winds, *Drew* 3531, 3532. 3540. 3553—Witness does not know anything of the expense of making a harbour at Lundy, but there is plenty of material there for the works, *ib. 3536, 3537. 3550-3552. 3560-3563. 3611, 3612. 3637-3639*—Advantage of Lundy Island over Clovelly as the site of a harbour, *ib. 3542-3544*—Advantage of a harbour at Lundy Island or Clovelly over one at Swansea, *ib. 3545-3548. 3564-3566*—Lundy would be available equally for foreign bound as for coasting vessels, *ib. 3554-3559. 3570. 3603, 3604.*

It is proposed to erect a breakwater from Rat Island to Tibbet Point; this would be a depth of 13 fathoms at low water, *Drew* 3560-3562. 3574-3582. 3600-3602—Doubt as to there having been any great number of wrecks which might have been prevented by a harbour of refuge at Lundy, *ib. 3567-3573. 3623-3625*—An American ship, lost in Barnstaple Bay in 1856, would have been saved by a harbour as proposed, *Drew* 3572; *Gething* 3689-3691—Advantage of the salient position of Lundy over any other position between the Mumbles and Milford Haven, *Drew* 3613-3618—Good holding ground at Lundy, *Drew* 3622; *Gething* 3654, 3655.

Necessity for a harbour of refuge at Lundy, notwithstanding the refuge afforded at Milford Haven, *Drew* 3626-3636—The ingress and egress for vessels if a breakwater were made at Lundy, *Gething* 3656, 3657. 3679-3682. 3694-3700—Vessels from Cardiff, Newport, and other places avoid the danger of the north shore as much as possible, whilst there are no such dangers on the south shore, or in making for Lundy, *ib. 3668-3674. 3722-3727. 3742-3747. 3756-3758*—Lundy Island is far preferable to St. Ives, as the site for a harbour, *ib. 3679. 3761-3765*—The opinion of the trade generally of the Bristol Channel is in favour of Lundy as the site for a harbour, *ib. 3683, 3684. 3741. 3766-3768.*

Probable prevention of many wrecks by a harbour at Lundy, *Gething* 3687-3693—Shelter at present at Lundy from westerly gales only, *ib. 3694-3700*—The depth of water outside Lundy is too great for small vessels to anchor in, *ib. 3728-3740*—Probable cost of the proposed harbour; accommodation to be given, *ib. 3753-3755*—Considerable detention of vessels in different parts of the channel for want of a proper harbour at Lundy, *ib. 3770.*

See also *Bristol Channel. Convict Labour.*

## M.

*McKellar, Captain James.* See *Cumming, Captain William, &c.*

*MacLeod of MacLeod.* Letter from MacLeod of MacLeod to the Chairman of the Committee, dated 15 March 1858, with reference to a harbour of refuge at Wick Bay, and enclosing a report by Mr. Rendel on the subject, *App. p. 226-229.*

*Man, Isle of.* The Isle of Man does not seem to afford refuge available for large vessels, *Thompson* 2931, 2932—A harbour of refuge at the Isle of Man would be useful only for small vessels, *Hamilton* 3033, 3034.



*Man, Isle of*—continued.

Evidence in favour of a harbour of refuge either at Ramsay or Port Erin in the Isle of Man; Ramsay is the best site, but Port Erin is the most economical, *Walker* 3839-3847—Way in which funds are proposed to be procured for the contemplated harbours of refuge or trade, *ib.* 3850. 3855-3860—Delay in doing anything at the Isle of Man in consequence, as witness believes, of an unfavourable report by Captain Vetch, *ib.* 3851. 3861-3864.

Reference by the Committee to the importance of a pier or small harbour of refuge at Douglas or Port Erin, *Rep.* p. ix.

*Milford Haven.* Accessibility of Milford Haven as a place of refuge, *Henderson* 415, 416—Milford Haven affords excellent shelter, but is not available in a south-west gale, *Sheringham* 1209, 1210—The harbour is the finest in the world, *Gething* 3757.

*Moody, Colonel Richard Clement, R.E.* (Analysis of his Evidence.)—Commands the Royal Engineers in Scotland, 504, 505—Evidence in favour of Peterhead as by far the best site on the east coast of Scotland for a harbour of refuge, both in a national and commercial point of view, 506 *et seq.*—Facilities for fortifying Peterhead as to protect shipping in the harbour, 508-510—Inferiority of Wick to Peterhead as a harbour of refuge or a naval station, 511. 518-527—A harbour at Peterhead would hardly accommodate a large fleet, 512-514—Approval of Mr. Stevenson's plan of a harbour at Peterhead, 517, 518—Advantage of salient points for naval stations, 522. 525—In time of war, Long Hope would naturally be a naval station as well as Peterhead, 526, 527.

*Mumbles, The (Bristol Channel).*—On some occasions witness has run for shelter to the Mumbles in Swansea Bay, *Forward* 1361, 1362—Considerations as to the best shelter for vessels not able to make St. Ives and obliged to run up the Bristol Channel in a gale; the Mumbles is the best site for a harbour of refuge for these vessels, *ib.* 1372 *et seq.*—A very good harbour might be made at the Mumbles' Head, *Samson* 1620-1624. 1633.

Prevention of very numerous wrecks if there were a harbour of refuge at the Mumbles, *Claxton* 1776-1781. 1787-1790—A harbour at the Mumbles would cost about 300,000*l.*, *ib.* 1780—Large vessels as well as coasters would largely make use of the harbour, *ib.* 1787-1790—Advantage of a refuge at the Mumbles rather than at King road, *ib.* 1812—If there be but one large work in the British Channel it had better be at the Mumbles, *ib.* 1833-1836—The Mumbles would be available to the largest ships, and would make a good naval station, *ib.* 1837, 1838.

Further evidence relative to the importance of a harbour of refuge at the Mumbles, showing under what circumstances it would be most useful, *Claxton* 1856-1872, 1884-1888, 1940-1943—There is excellent holding ground, *ib.* 1867-1869—There is plenty of material for a breakwater, *ib.* 1870—Enormous trade from Swansea and Cardiff, which would be benefited by a harbour at the Mumbles, *ib.* 1871—A harbour at the Mumbles would be the most useful for the coasting trade, *ib.* 1935, 1936. 1939-1943.

In the British Channel or the Welch coast the most important point for a harbour of refuge is at the Mumbles, near Swansea, *Abernethy* 2016-2018. 2031, 2032—Facilities for providing material for breakwaters, *ib.* 2018, 2023—Proposition for the construction of two breakwaters of copper slag at an estimated cost of 370,000*l.*, *ib.* 2019 *et seq.*—Proposed use of copper slag as being more durable than limestone and obtainable at less cost, *ib.* 2023. 2034.

Position of the proposed breakwaters; neither would be connected with the land, *Abernethy* 2026-2030—An area of 200 acres would be sheltered in all winds, with a depth of four fathoms in low water of spring tides, *ib.* 2030—Proposed encasement of the rubble-work above low water in frameworks of creosoted timber; saving thereby of time and expense as compared with a masonry superstructure, whilst equal durability may be obtained, *ib.* 2037-2069.

Witness has taken refuge at the Mumbles, which is a safe point at present, *Thompson* 2981-2983. 3008—Consideration of the extent to which an improved refuge on the Mumbles would be useful, *Drew* 3564-3566. 3583-3599. 3606—Objection to a harbour of refuge at the Mumbles on account of the sandbanks there, and the reluctance of the masters of vessels to run for it, *Gething* 3646. 3650, 3651. 3670-3672. 3701-3715. 3770—Advantage of a refuge at the Mumbles in the case of small vessels which run back for Penarth Roads, *ib.* 3706-3721. 3748-3752.

## N.

*Natural Harbours of Refuge.* Reference by the Committee to the numerous natural harbours on different parts of the coasts of the United Kingdom, *Rep.* p. v.

<i>Naval Stations.</i>	<i>See Filey Bay, 2.</i>	<i>Newhaven, and Seaford Bay.</i>	<i>Peterhead, 3.</i>
<i>Portrush.</i>	<i>Sites. Wick, 4.</i>		
			<i>Newhaven,</i>

*Newhaven, and Seaford Bay.* Witness strongly recommends the formation of a harbour of refuge in Seaford Bay, Newhaven, as the most eligible site for the purpose between Portsmouth and the Downs, *Sir H. Shiffner* 2076 *et seq.*—Extract from the report of Sir Byam Martin's commission in favour of a harbour in Seaford Road, *ib.* 2076—Many ships would make for a harbour in Seaford Bay, instead of incurring the risk of running for the Downs or Portsmouth in certain winds, *ib.* 2080-2086—Greater importance for national purposes of a harbour of refuge in Seaford Bay than on the north-east coast, *ib.* 2088, 2089, 2109-2112—Best position for the breakwater, *ib.* 2096-2098.

Reference to Mr. Scamp, of the Admiralty, as having proposed a plan for a harbour near Newhaven, and as able to give information to the Committee on the subject, *Sir H. Shiffner* 2098-2100, 2103—The cost of the harbour contemplated by Sir B. Martin's commission was 1,250,000 *l.*, *ib.* 2101-2103—Available supply of material near Newhaven for a breakwater, *ib.* 2103-2108—Peculiar importance, in time of war, of a harbour of refuge at Seaford, and a harbour of refit at Newhaven, *ib.* 2109, 2110—Captain Washington was a member of Sir B. Martin's commission, and signed the report recommending a harbour at Seaford, *ib.* 2113, 2114.

Recommendations by the Commissioners of 1839 and 1844, of which witness was a member, in favour of a harbour of refuge and defence at Seaford, as well as at Dover and Portland, *Walker* 3771-3778—Opinion of the late Duke of Wellington that Seaford was a more important site than Dover for a harbour, *ib.* 3774, 3776—Witness recommends a harbour at Seaford as soon as Dover harbour is completed, *ib.* 3785, 3806—Good anchorage at Seaford, *ib.* 3786—Ample and available supply of material for the construction of a breakwater, *ib.* 3786, 3787, 3825, 3826.

Explanation with reference to an estimate, as given by witness to Sir Charles Wood, that Newhaven harbour could be greatly improved for about 70,000 *l.*, *Walker* 3788-3800, 3836—The proposed improvement would include a deepening of the entrance from two to eight feet; character and number of the vessels which might then be accommodated, *ib.* 3794, 3801, 3802, 3811-3821—Estimate of 150,000 *l.* for more extensively improving Newhaven harbour, and for building docks and basins, *ib.* 3803, 3804, 3835, 3836—The Report of the Commissioners recommending a harbour at Seaford was signed by Captain Washington, *ib.* 3807-3810.

Nature of the works proposed at Newhaven for a cost of 70,000 *l.*, *Walker* 3813, 3814, 3866-3868—Character of the material available for the proposed works at Seaford and Newhaven, *ib.* 3825, 3826—Non-objection to Seaford or Newhaven as a harbour of refuge, on the ground of any facility for the landing of invading troops there, *ib.* 3829-3831, 3869—The estimated expense of the harbour recommended by the commission at Seaford was 1,250,000 *l.*, *ib.* 3834.

Items of Mr. Walker's estimate for Newhaven; total of 70,000 *l.*, including contingent expenses, *App. p.* 210.

Newhaven, being a tidal harbour, cannot be considered a harbour of refuge, *Winder* 2000-2002—A harbour of refuge in Seaford Bay would not be much resorted to in south-west gales, *Lowery* 2142.

Explanation by Captain Washington of his views as to the usefulness of a large harbour in Seaford Bay, and as to the improvement of Newhaven harbour, *App. p.* 219.

*New Quay Bay (Cornwall).* Advantage of providing some refuge in New Quay Bay; a breakwater would be very expensive, *Forward* 1376, 1392-1395, 1437-1439—Period in which the harbour at New Quay has been filled up by silting, *Cluxton* 1752, 1753, 3521—The small harbour which was made at New Quay is filled up with sand, *Harris* 3498.

See also *Holwell*.

*North-east Coast of England.* See *England, North-east Coast of*.

## O.

*Orkneys.* There are several fine harbours in the Orkneys available under certain circumstances when vessels are caught in a gale near Wick, &c., *Stevenson* 117, 118, 174-177, 212-218—The Orkneys supply good natural harbours, *Henderson* 272; *Hamilton* 3046-3048—Vessels going north and overtaken in a gale to the east of Peterhead would make for the Orkneys or Shetland rather than for Wick or Peterhead, *Henderson* 341-354.

## P.

## PADSTOW (CORNWALL):

1. *Generally as to the Advantages of a Harbour of Refuge at Padstow.*
2. *Depth of Water available.*
3. *Nature of the Works proposed.*
4. *Cost.*
5. *The Harbour not available for large Vessels.*
6. *Objections generally to the proposed Harbour of Refuge.*

1. *Generally as to the Advantages of a Harbour of Refuge at Padstow:*

Evidence in favour of Padstow as the best and least expensive site for a harbour of refuge for vessels caught in a gale in the Bristol Channel, *Sheringham* 1156 *et seq.*—Vessels going down the Bristol Channel, and caught in a south-westerly gale, would be more likely to make Padstow than St. Ives, *ib.* 1165-1169. 1220-1229—On the whole, Padstow is far preferable to St. Ives as a harbour of refuge on that coast, *Sheringham* 1203. 1276-1282. 1304; *Bryant* 1456 *et seq.*—Impression that there is good holding ground at Tower Head, Trevoze Head, and Padstow, *Sheringham* 1251-1254.

In a north-west wind, which is the most dangerous on the coast, Padstow commands a much larger area than St. Ives, *Sheringham* 1279-1282; *Bryant* 1458-1460. 1493-1496—Shelter was always looked for by witness, when surveying parts of the coast of Cornwall, at Padstow or Lundy Island, *Sheringham* 1291-1293. 1319, 1320—The race of the tide in Padstow Harbour is by no means violent, *ib.* 1294—Views of the late Sir Francis Beaufort in favour of Padstow as a harbour of refuge, *ib.* 1295-1298.

The coasting trade of the Bristol Channel, &c., mainly requires protection, and a harbour at Padstow would be available chiefly for them, *Bryant* 1460-1467. 1503-1505. Capital holding ground in Padstow Harbour; it is clay and not sand, *Bryant* 1472, 1473. 1497-1499. 1527, 1528. 1541, 1542. 1562-1564; *Claxton* 1707-1710—In a north-west gale a harbour of refuge would be more useful at Padstow than at St. Ives in the proportion of twelve to one, *Bryant* 1493-1496. 1501—Facility for outward-bound vessels getting from under St. Ives Head into Padstow Harbour in a south-west wind, *ib.* 1529-1543—How far large vessels could be accommodated in the prepared harbour, *Bryant* 1551-1561. 1579—Doubt at the local trade being particularly interested in the harbour, *ib.* 1565-1572—The lower part of Padstow Harbour is not subject to toll, *ib.* 1580.

Witness has surveyed Padstow, as well as the whole coast of Wales and the Irish Channel, *Claxton* 1698-1700—Great facilities for improving the harbour, *ib.* 1701-1704—Great importance of improving Padstow as a harbour of refuge for the coasting trade, *ib.* 1704, 1705. 1709. 1726, 1727. 1736-1749—More vessels and lives would be saved by a proper harbour at Padstow than elsewhere on that coast, *ib.* 1704. 1736-1738—Witness, who is a marine surveyor, has been professionally employed in surveying Padstow, *ib.* 1710, 1711—Harbours at St. Ives, Clovelly, and Trevoze Head would not supersede the necessity of a refuge at Padstow for the coasting trade, *ib.* 1906-1909. 1921-1934.

2. *Depth of Water available:*

Particulars as to the depth of water at Padstow, *Claxton* 1702. 1704. 1706. 1739-1747. 1813-1815—At low water there are 16 or 17 feet of water on the bar, *ib.* 1702—In one part of the harbour there is a depth of 24 feet at low water, *ib.* 1702. 1742—Near Padstow itself the water is in some places only eight or nine feet deep, *ib.* 1754, 1755.

3. *Nature of the Works proposed:*

Witness proposes to increase the depth of water at Padstow by dredging, and by building a guiding wall to assist the scour of the tide; particulars hereon, *Sheringham* 1170-1179. 1201. 1208. 1255. 1301-1303—Practicability of making Padstow a large harbour of asylum by carrying out a breakwater; witness however does not contemplate a breakwater, *ib.* 1241-1243—Suggested cutting down of Stepper Point in making a guide embankment at Padstow, *ib.* 1283-1289.

Refuge in Padstow harbour from a north-west wind if part of Stepper Point were removed and an embankment made across Harbour Cove, *Bryant* 1458-1460. 1476-1496—Capacity of Padstow harbour as regards width and depth; increased and excellent accommodation if the dredging and natural scour suggested by Captain Sheringham be carried out, *ib.* 1470, 1471. 1474, 1475. 1492. 1505-1518. 1537-1540. 1551-1561. 1579—The cutting down of Stepper Point and deepening the bar by increasing the scour of the channel, or by dredging, are the only requirements for the improvement of Padstow, *Claxton* 1714-1724—Means for widening the entrance, *ib.* 1917.

4. *Cost:*

An outlay of about 40,000 *l.* would go far towards doing all that was necessary at Padstow, *Sheringham* 1200. 1201. 1299. 1300—Estimate that an expenditure of 30,000 *l.* would

## Report, 1857-8—continued.

**PADSTOW (CORNWALL)**—continued.4. *Cost*—continued.

would give a harbour accessible at all time with 20 feet of water at the entrance, *Bryant* 1486, 1492, 1500-1512, 1573-1578—The whole improvements might be done for about 30,000 *l.*, including about 15,000 *l.* for cutting down Stepper Point, *Claxton* 1725, 1914.

5. *The Harbour not available for large Vessels :*

The entrance is very narrow, and should be widened if large vessels are to take shelter there, *Claxton* 1703, 1704—For large vessels Padstow Harbour is not adapted, nor do large vessels often go near the place, *ib.* 1704, 1706, 1739-1747, 1878-1884—There is not much room for large vessels to bring up in bad weather, *ib.* 1816, 1817.

6. *Objections generally to the proposed Harbour of Refuge :*

Witness has only twice taken refuge in Padstow, the entrance to that harbour being exceedingly narrow and dangerous, and the anchorage being very unsafe, *Forward* 1363-1366, 1422, 1428-1433—A breakwater from Stepper Point would not be effectual in rendering the harbour largely available, *ib.* 1400-1403, 1441, 1442—Unsafe anchorage at Padstow; the ground is all sand, *ib.* 1432, 1433—Reference to the views of Captains Washington and Sullivan, as being rather adverse to a harbour of refuge at Padstow, *Bryant* 1519-1526—Witness knows nothing practically of St. Ives or Padstow, but has understood that there is not sufficient water for a proper harbour at the latter place, *Samson* 1614-1618, 1629-1632, 1658-1661, 1664-1668.

See also *Bristol Channel. Land's End to Hartland Point.*

**Passing Tolls.** Views of the Committee in favour of a system of passing tolls in connexion with the proposed harbours of refuge, *Rep. p. x-xx*—The greatest care should be taken to impose such tolls or dues only upon ships which in their natural course would pass such harbours, and therefore benefit by them, *ib.* xii—The proposed tolls could not be exposed to any of the objections so justly raised against the passing tolls inflicted upon shipping for the harbours of Ramsgate, Dover, Bridlington, and Whitby, *ib.* xix, xx—Suggestions as to the amount of the proposed tolls, *ib.* xx.

**Pentland Firth.** Danger of the navigation of Pentland Firth in rough weather, *Stevenson* 34-36—Various circumstances under which vessels now pass through Pentland Firth, *Stevenson* 221-225; *Henderson* 338-340, 376-379; *Hamilton* 3042-3045—In a strong westerly wind vessels do not go through Pentland Firth; they make for the Orkneys rather than for Wick, *Henderson* 277-280.

**Pentyre Head.** Facility at Pentyre Head for the formation of a harbour of refuge, *Claxton* 1848-1853.

**PETERHEAD (EAST COAST OF SCOTLAND):**

1. *This Site the best on the East Coast for a Harbour of Refuge.*
2. *Natural Facilities for the Formation of a large Harbour; Works proposed.*
3. *Advantages of the Site as a Naval Station.*
4. *Extent of the local and passing Trade.*
5. *Cost of Harbour proposed by Mr. Stevenson.*
6. *Objections to the proposed Harbour.*

1. *This Site the best on the East Coast for a Harbour of Refuge:*

Great value of a harbour of refuge for passing merchant vessels at Peterhead, there being now no refuge on the dangerous coast between the Firth of Forth and Cromarty, *Stevenson* 40 *et seq.*—Advantage of Peterhead over Wick as regards facilities for refitting disabled vessels, *ib.* 131-142, 171-173—There are more wrecks in the Peterhead district than the Wick district, *ib.* 149—Peterhead is nearer than Wick to the Baltic, *ib.* 153-155—Distance between Wick and Long Hope, and between Peterhead and Long Hope, *ib.* 157, 158.

Peterhead stands on a more salient point than Wick, and is much further removed from any other natural harbour of refuge, *Stevenson* 188, 189, 257—There is good holding-ground, *Stevenson* 191, 192; *Henderson* 315—There is no sand and no disposition to silt, *Stevenson* 193—Considerable number of wrecks near Peterhead, to obviate which, as well as to prevent vessels from being driven out of their course, a harbour is required, *ib.* 204-211—For the accommodation of the general trade, Peterhead has higher claims than Wick to a harbour, *ib.* 233-238—A shelter at Peterhead is mainly required from easterly or north-easterly gales, *ib.* 260-263.

Prevention of loss of life if there had been a harbour of refuge at Peterhead on occasion of violent changes in the wind, *Henderson* 287-290—Peterhead possesses greater claims

**PETERHEAD (EAST COAST OF SCOTLAND)—continued.****1. This Site the best on the East Coast for a Harbour of Refuge—continued.**

claims to a harbour of refuge than any other site on the coast, *Henderson* 303 *et seq.*—In advocating the claims of Peterhead witness explains that he has no connexion with the place, *ib.* 304. 327, 328.

Peterhead, both in a national and commercial point of view, is the most desirable site for a harbour on the east coast, *Moody* 506 *et seq.*; *Cerjat* 537-544—From information along the coast witness ascertained that Peterhead was considered far more important than Wick as the site for a harbour, *Moody* 511. 523, 524—Witness concurs generally in the evidence of Captain Henderson, *Cerjat* 545.

**2. Natural Facilities for the Formation of a large Harbour; Works proposed:**

Adaptation of the coast at Peterhead for a harbour on a large scale, but not for a small harbour, *Stevenson* 68, 69—The bay of Peterhead is fully as well protected by the conformation of the coast as the Bay of Wick, *ib.* 70, 71—A large fleet of vessels might be accommodated, *ib.* 74—Considerable facilities for procuring near Peterhead material for a harbour, *ib.* 85-90. 244—Witness's plan involves an area of about 200 acres, *ib.* 91, 92—There are two entrances to Peterhead, *ib.* 129—Depth of the proposed harbour there, *ib.* 129, 130. 150, 151—Greater facilities at Peterhead for large accommodation than elsewhere along the coast, *ib.* 190-197.

The northern bay at Peterhead is the preferable one for a harbour of refuge, *Henderson* 301, 302—Docks and a double harbour might be made at Peterhead, but they would be very expensive, *ib.* 309. 331-337—Approval of Mr. Stevenson's plan of a harbour at Peterhead, *Moody* 517, 518.

**3. Advantages of the Site as a Naval Station:**

Peterhead possesses greater claims to a naval station than any other place on the east coast of Scotland, *Henderson* 303 *et seq.*—Facility for fortifying Peterhead, *Henderson* 310. 383-386; *Moody* 508-510—Probability, if there were a harbour at Peterhead, of large merchant vessels as well as vessels of war resorting thither, *Henderson* 390-399.

Evidence in favour of Peterhead, as by far the best site on the east coast of Scotland for a harbour of refuge, both in a national and commercial point of view, *Moody* 506 *et seq.*; *Cerjat* 537-544—The saliency of the position is a great advantage, *Moody* 510. 522. 525—A harbour at Peterhead would hardly accommodate a large fleet, *ib.* 512-514.

Doubt whether a harbour or naval station at Peterhead is so necessary as at Wick, *Sir J. C. Ross* 636-643.

**4. Extent of the local and passing Trade:**

Much less extent of the fishing trade of Peterhead than of Wick, *Stevenson* 29-32. 143-145—Much larger merchant traffic passing by Peterhead than Wick, *ib.* 40, 41. 73-82. 127—Considerable extent to which vessels now take refuge at Peterhead, *ib.* 74, 97. 245-253. 260—There are thirty whale ships belonging to Peterhead, *ib.* 156.

Abstract of returns of vessels entered inward at Peterhead in 1855, 1856, and 1857, *App. p.* 209—Return of the vessels which entered the harbour for refuge in each of the years 1848-1857; *ib.* 210.

**5. Cost of Harbour proposed by Mr. Stevenson:**

Witness's plan involves a cost of about 335,000 *l.*, *Stevenson* 91, 92—Between 300,000 *l.* and 400,000 *l.* would (on a rough calculation) be required for the harbour, *ib.* 234, 235.

**6. Objections to the proposed Harbour:**

Disadvantages of Peterhead as compared with Fraserburgh, as a site for a harbour of refuge; enormous expenditure in the former case, *Abernathy* 3160-3168. 3179. 3203, 3204. 3214—The weather on the coast off Peterhead is very unfavourable to the proposed works, *ib.* 3179. 3203, 3204.

See also *Archangel Trade. Baltic Trade. Wick.*

*Peto, Sir Samuel Merton, Bart.* (Analysis of his Evidence.)—Contractor for public works; has had considerable experience in the construction of harbours, 3215-3217—Superintended the construction of Lowestoft Harbour, 3217. 3218—Hands in a chart of the coast adjoining Lowestoft and a plan of the harbour, 3219—There are two piers, one 800 feet long and the other 1,250 feet, the width of the entrance being 150 feet; 3219—The outer harbour is easy of access at all times, and has been the means of saving many disabled vessels, 3222. 3245. 3261, 3262. 3277. 3304, 3305. 3336, 3337—The sandbanks afford considerable protection from the sea, 3222. 3226. 3254, 3255.

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## Report, 1857-8—continued.

*Peto, Sir Samuel Morton, Bart. (Analysis of his Evidence)—continued.*

Very large traffic passing outside Lowestoft, and large number of fishing and other vessels taking refuge in the harbour; statistics hereon, 3223, 3224, 3233-3237, 3247-3253, 3283, 3284, 3300-3305, 3318—Yarmouth and Lowestoft roads may be considered as one, 3225—Inadequacy of the inner harbour at Lowestoft to meet the demands upon it for shelter; large number of vessels, which at times are necessarily refused a refuge for want of space, 3227-3232, 3258-3263, 3285-3289—There are not many wrecks immediately off the harbour, 3238.

Suggestion that a space of about eight acres, called Kirkley Ham, in the inner harbour be dredged, and be applied solely to purposes of refuge; this would accommodate 300 additional vessels in the coasting trade, and might be done for from 35,000 *l.* to 45,000 *l.*, 3239-3243, 3263-3282, 3295-3299, 3310, 3311—The outer harbour does not require any expenditure for purposes of refuge, 3239, 3244-3246, 3277, 3318—Occasional inadequacy of the protection afforded in Lowestoft roadstead, 3255, 3278-3280, 3290-3294, 3315—Increased losses from collision since the increased resort of screw steamers to the harbour, 3256, 3257.

There is no bar at Lowestoft, and the depth across the entrance to the outer harbour is from 19 to 20 feet at dead low water, 3306-3308, 3317, 3329, 3330—The inner and outer harbours are dredged for about 350 *l.* a year, and there has been no sitting up, 3308, 3309, 3331-3333, 3335—Mention of several high professional authorities as favourable to Lowestoft harbour, 3314—There would be no difficulty in keeping up the proper depth, by dredging annually, 3316-3333—Failure of the original harbour, which cost about 200,000 *l.*; purchase of the works by the Norfolk Railway Company, 3334, 3335—Papers delivered in (*App. p.* 211-214), containing statistics showing the trade of the port and the efficiency of the harbour for general purposes, 3336, 3337.

*Pielfendry (Walney Island).* North of Liverpool a harbour of refuge would be very useful at Pielfendry, inside Walney Island, *Hamilton* 3050-3057.

*Plymouth.* Plymouth breakwater was begun in 1812, and is not yet completed, *Walker* 3879.

*Porthdinllaen (Wales).* Preference given by witness to Porthdinllaen over Holyhead as the site for a harbour of refuge for large vessels, *Sheringham* 1311-1318—Witness reported against a harbour at Porthdinllaen, *Evans* 2281.

**PORTRUSH (NORTH COAST OF IRELAND):**

1. *Generally as to the Advantages of a Harbour at the Skerries, near Portrush.*
2. *Natural Facilities for the Formation of a Harbour.*
3. *Particular Works proposed.*
4. *Cost.*
5. *Advantage of the Harbour as a Naval Station.*
6. *Views of the Committee in Approval of the Work.*

1. *Generally as to the Advantages of a Harbour at the Skerries, near Portrush:*

A harbour of refuge at Portrush would be extremely useful, *Sir J. Burgoyne* 2173-2179, 2189; *Sir J. Dombrain* 2309 *et seq.*—Numerous vessels which would probably be benefited by a harbour at Portrush; vessels from Liverpool and the Clyde would in fact then go north-about instead of south-about, *Evans* 2253-2261, 2267-2275, 2279, 2280, 2301-2303; *Sir J. Dombrain* 2338-2344, 2351-2353, 2358-2360—Vessels could get out of a harbour at the Skerries in any wind, *Evans* 2257, 2300—Tendency of the proposed harbour to diminish wrecks, *ib.* 2282-2285—The entrance would not be difficult and vessels could easily get out again, *Sir J. Dombrain* 2355, 2356—When inspector of the coast guard service, witness officially recommended a harbour at Portrush, *ib.* 2362, 2391, 2392.

A large proportion of the vessels from Glasgow and Liverpool to America or Canada go north-about; still greater use of the North Channel if there were a harbour at Portrush, on the north coast, *M'Kellar and Cumming* 2419 *et seq.*—Difficulty at present of sailing vessels making use of Portrush harbour, *M'Kellar* 2450-2452—Vessels going westward could not leave the Skerries on their voyage in a north-west wind, *ib.* 2479-2484—The importance of a harbour at Portrush has been spoken of for some years, *ib.* 2485—Advantage of a harbour at Portrush, at which vessels from America might call for orders before going on to the Clyde, *Cumming* 2488-2491—A harbour on the north coast is wanted principally for sailing vessels, *ib.* 2496.

For many reasons Portrush is the most eligible spot on the north of Ireland for a harbour, *Gibbons* 2543, 2569-2577—There is railway and telegraphic communication with Portrush, *Dargan* 2618, 2619—The vessels in the Coleraine trade now constantly touch at Portrush, *ib.* 2620-2622.

**PORTRUSH (NORTH COAST OF IRELAND)—continued.****1. Generally as to the Advantages of a Harbour, &c.—continued.**

Advantage to vessels from Liverpool going north-about, if there were a refuge at the Skerries, *Thompson* 2949, 2950, 2990—The great majority of vessels outward bound from Liverpool go south, and would not be induced to go north by the proposed harbour, *Thompson* 2955, 2967, 2985, 3004-3010; *Hamilton* 3030-3032, 3063-3083, 3096, 3105—The Clyde masters usually go by the North Channel, and a harbour at Portrush would be a very great advantage to all such vessels, *Hamilton* 3032, 3078-3087—Doubt as to a harbour of refuge at Portrush being of much use, *Bowen* 3346.

**2. Natural Facilities for the Formation of a Harbour :**

There is an excellent supply of material easily available, *Sir J. Burgoyne* 2185, 2193; *Evans* 2235-2237; *Gibbons* 2520-2524, 2559-2561; *Dargan* 2584-2589, 2593—Witness has been round the world many times, but never saw any place where nature has done so much towards a harbour of refuge as at the Skerries, near Portrush, *Evans* 2215-2218—There is no danger of the bay silting up, *Evans* 2250, 2251; *Sir J. Dombrain* 2350; *Gibbons* 2548-2551—The holding ground is excellent, *Evans* 2262; *Sir J. Dombrain* 2337.

Natural protection at the Skerries except from north-west winds, *Sir J. Dombrain* 2310-2316—The Skerries present peculiar facilities for the formation of a harbour of refuge, *Gibbons* 2518-2520, 2569; *Dargan* 2584—Considerable shelter under the Great Skerries, *Gibbons* 2552, 2553—When the works between the Little Skerries and the land were completed, considerable protection would be afforded, *Dargan* 2598-2604, 2609-2611—Sufficient material might be got from the Large Skerries for the work connected with them, without diminishing their height too much, *ib.* 2615-2617.

Remarks by Mr. Hoskyn, dated 9 December 1857, as to the facilities afforded by the Skerries for forming a harbour of refuge at Portrush, *App. p.* 225.

**3. Particular Works proposed:**

Nature of the works suggested by witness in order to make a very large harbour at the Skerries, which would be protected in all winds, *Evans* 2218 *et seq.*—Witness would join the mainland in the small Skerries, but would for the present leave open the space between the Small and Great Skerries, *ib.* 2219-2221, 2239-2247—The greater Skerries, if necessary, might easily be extended, *ib.* 2263-2266.

Adequacy of the plan proposed by Admiral Evans for rendering the Skerries an excellent protection in all winds, *Sir J. Dombrain* 2328-2331—Great depth and large area to be provided at the Skerries, *ib.* 2333-2336—Excellent protection at the Skerries if certain works were carried out there, *M<sup>c</sup>Kellar* 2410-2417.

The rocks constituting the Skerries would form the chief portion of the breakwater, *Gibbons* 2520-2524; *Dargan* 2584-2589, 2593—Plan of construction proposed; material aid already supplied, *Gibbons* 2528-2547—Objection to the entrance being between the Lesser Skerries and the shore, *ib.* 2554, 2555—The works might be finished in two years, *ib.* 2567, 2568.

Witness projected a work at the Skerries, which has since been improved by Sir James Dombrain and Mr. Gibbons, *Dargan* 2590-2592—The inner breakwater should be rubble work, with a faced wall at the top, *ib.* 2612-2614.

**4. Cost:**

An outlay of about 100,000 *l.* would cover the works proposed by witness, and an additional 15,000 *l.* or 20,000 *l.* would do all that was necessary towards closing the passage between the two Skerries, *Evans* 2238-2242—Certain works proposed by witness, and which would afford great protection, could be executed for 100,000 *l.*, *Gibbons* 2525-2535, 2562-2566—Advantage of a curtailment of the open space between the Great and Little Skerries; this might be done at an increased cost of 20,000 *l.* or 30,000 *l.*, *ib.* 2544-2547, 2556-2561—Estimate of 100,000 *l.* as the cost of the work; witness would undertake to do it in three years for that amount, *Dargan* 2594-2598—The breakwater from the shore of the Little Skerries could be completed in about a year; it would cost rather more than half the total amount, *ib.* 2605-2609.

**5. Advantage of the Harbour as a Naval Station:**

Portrush is a very desirable site for a harbour for naval purposes in time of war, *Sir J. Burgoyne* 2174, 2180, 2187, 2188.

**6. Views of the Committee in Approval of the Work:**

The Committee refer to the great facilities for making a harbour of refuge at the Skerries, and are of opinion that the work is well worthy of favourable consideration, *Rep. p.* ix.

*Proceedings of the Committee, Rep. p.* xxiii-xxxii.

*Progress of Works. See Commencement and Progress of Works.*

## R.

**Red Bay (North Coast of Ireland).** There are great facilities for the construction of a harbour of refuge at Red Bay, between Belfast Lough and the Skerries, but the Skerries present a more eligible site, *Gibbons* 2570-2577.

**Rendel, Mr. (the late).** Report by Mr. Rendel, dated 28 May 1853, containing suggestions for the formation of a harbour of refuge at Wick, with an estimate of the cost, *App.* p. 226-229.

**Ross, Rear Admiral Sir James Clark.**—(Analysis of his Evidence.) Is well acquainted with the bays of Filey, Bridlington and Scarborough, 551—Examined Filey Bay most minutely some years ago with reference to its capabilities for a naval station, for which he considers it admirably adapted, 552-554—Has recently viewed the bay in its character of a harbour of refuge, for which, as well as for a naval station, it is peculiarly fitted, 555 *et seq.*

Suggestions as to the length and position of the breakwater necessary to make Filey Bay an efficient harbour of refuge, 556-559. 562-569. 624-626—Much more extended breakwater required at Filey for a naval station than a harbour of refuge, 557. 559. 566 The beach at Filey is a firm sand, without any rock, 560, 561. 574-576—Gradual deepening of the water off the coast, 562—Advantage of a harbour of refuge at Filey to vessels going northwards, and caught in a north-easterly gale at certain points north of the bay, 570. 573. 574. 627. 672.

Probable prevention of three-fourths of the wrecks which occur about Filey Bay, &c., if there were a harbour of refuge there, 570. 589. 590. 646. 667. 714-717—Special advantage of the harbour in the case of laden colliers caught in a south-easterly or easterly gale under Flamborough Head, at which point such vessels frequently congregate in great numbers, 570-572. 586-593. 616-630. 644-662. 693-697. 722. 723—Peculiar facilities in regard to the provision of material for the proposed breakwater, 577-580. 608. 609. 689. 690—The holding ground is particularly good, 581, 582.

Facilities at Filey, if there were a harbour there, for the refitting of disabled vessels, 583, 584—Statement that the loss of laden colliers, as compared with light ones, off Flamborough Head, &c. as four to one; explanation hereon, 585-588. 668-671. 699. 700. 725. 726—Necessity of a harbour of refuge at Hartlepool, or near that place, as well as at Filey Bay; opinion, however, that it would not prevent so many wrecks as one at Filey, 589. 594. 595. 616-622. 631. 632. 646-652. 663-667. 691-698. 714-724.

A harbour at Filey would not be available in the case of vessels caught in a north-easterly gale south of Flamborough Head, or in a south-easterly gale off Shields, or leeward of the harbour, 596-603. 675. 676. 701-713—Vessels caught in a south-easterly gale off Shields, or that part of the coast, had better keep to sea, and do not require a harbour, 599. 603. 604. 675-680. 707. 730. 731—Nature of witness's connexion with Filey, 605, 606—There is no tendency in the bay to silt up, 610-612—The removal of the material for the breakwater would at the same time give a space for Government works, 613-615.

Although Filey is not a port of commerce vessels would run for it instead of for Hartlepool, Sunderland or Shields, and wrecks would thereby be prevented, 616-622. 644-662. 693-697—Objection to Bridlington Bay as the site for a harbour, 623. 650—For the general coasting trade, independently of the trade of the coal ports, a harbour at Filey would be much more useful than at Hartlepool, 631. 632—Advantage if there were a harbour for naval purposes at or near Wick, 632. 638-640. 643—Advantage of salient positions for naval stations; preference given to bights of bays for harbours of refuge, 633-635. 681-683—Doubt whether a harbour or naval station at Peterhead is so necessary as at Wick, 636-643.

Comparative facility for vessels to get out of Filey Bay, 673, 674—Firm site for the proposed breakwater, 684-688—Further evidence as to the use of a harbour of refuge at Filey to vessels overtaken by a north-east gale, 701-712—Witness cannot speak to the reported fact, that Hartlepool Bay is silting up, 718-721—In approving of Filey Bay for a naval station in time of war, witness contemplates that a steam squadron should be stationed there, 727-729.

**Royal Commission.** The Committee recommend the appointment of a Royal Commission in order to determine the particular spots, within certain limits, at which harbours of refuge shall be constructed, *Rep.* p. ix, x.

**Rye Harbour.** On the part of the Rye Harbour Commission, witness represents to the Committee the importance of some public expenditure on Rye Harbour, not only for local purposes, but as a convenient place for a coaling depôt in time of war, *Winder* 1972 *et seq.*—As a place of refuge Rye Harbour is not very available, *ib.* 1978-1987. 2008, 2009—There is so great an accumulation of shingle that the Commissioners have not the means to keep the harbour open, *ib.* 2006.



## S.

*St. Ives (Cornwall).* Circumstances under which a harbour of refuge in St. Ives Bay would be most useful, *Henderson* 414, 415. 424-448. 456-470—Advantages respectively of Padstow and St. Ives as sites for a harbour, *ib.* 456-468—Considerable shelter now given in the roadstead of St. Ives, *Sheringham* 1161-1164. 1214—Large expense necessary in making St. Ives a harbour or roadstead properly available for any considerable number of vessels; the expenditure however would be very useful, *ib.* 1162. 1202, 1203. 1248. 1307-1309—Greater depth of water at St. Ives than at Padstow, *ib.* 1180-1185—Danger to vessels in St. Ives Bay when the wind suddenly changes to the north-west, *ib.* 1217-1219—Ample supply of granite at St. Ives for carrying out a breakwater, *ib.* 1259, 1260.

Evidence in favour of St. Ives as the best site for a harbour of refuge for vessels going up and down the Bristol Channel, *Forward* 1337 *et seq.*—Excellent anchorage at St. Ives, *ib.* 1341—Excellent protection to be afforded in St. Ives Bay if there were a breakwater thrown out from St. Ives Head, *ib.* 1353-1360. 1367. 1371. 1421-1443—A breakwater at St. Ives Head would have saved the vessels lost in 1857 at Trevoze Head, *ib.* 1367—Witness has taken refuge at St. Ives five or six hundred times, *ib.* 1368—Refuge at St. Ives, if there were a breakwater there, to vessels from Liverpool, if caught in a westerly gale, *ib.* 1434-1436.

Advantage if, besides a harbour at Trevoze Head, there were one also at St. Ives, *Claxton* 1686. 1693-1695. 1818. 1854, 1855—For strategical purposes, St. Ives is the best point on the Cornish Coast, *ib.* 1887—For large vessels from Liverpool that could not get round the Land's End, a harbour at St. Ives would be a great boon, *ib.* 1889.

A harbour of refuge at St. Ives would be too far off for the trade of the Bristol Channel, *Drew* 3633; *Getling* 3675-3678. 3761-3765.

See also *Bristol Channel.* *Land's End to Hartland Point.* *Lundy Island.* *Padstow.*

*St. Tudwall's Roads (Welsh Coast).* An improvement at St. Tudwall's Roads, at the north horn of Cardigan Bay, would be very desirable, *Sheringham* 1192. 1230-1233—Respects in which a harbour of refuge at St. Tudwall's Roads would be more useful than Holyhead Harbour for outward bound vessels from Liverpool, *Claxton* 1819-1832—Good position of St. Tudwall's Roads as a place for some refuge, *Thompson* 2919-2922—St. Tudwall's Roads are a very good locality for a harbour of refuge for ships going south from Liverpool, *Hamilton* 3027-3029. 3058, 3059.

*Salient Positions. See Sites.*

*Samson Joseph.* (Analysis of his Evidence.)—Master mariner; has for thirty-two years traded up and down the Bristol Channel in the foreign trade, 1581-1585—The navigation of the channel is dangerous generally, but more especially eastward of Lundy, 1586-1589. 1594—A north-west wind is an opposing wind to outward-bound vessels out of the channel, 1590-1593—There is at present scarcely any refuge for vessels caught in the channel in a gale, 1594.

Evidence in favour of Clovelly in Barnstaple Bay as the best site in the channel for a harbour of refuge, 1595 *et seq.*—Witness knows nothing practically of St. Ives or Padstow, but has understood that there is not sufficient water for a proper harbour at the latter place, 1614-1618. 1629-1632. 1658-1661. 1664-1668—A very good harbour might be made at the Mumbles Head, 1620-1624. 1633—Difficult navigation up the channel to King Road, 1625-1628.

Drawbacks upon Lundy as a place of refuge, 1634-1639—Danger in running up channel of keeping too near the Cornwall coast, 1641. 1652-1655—About 1,000 vessels trade up and down the Bristol Channel weekly, 1642, 1643—Favourable opinion of Captain Vetch in regard to Clovelly as the site for a breakwater, 1644—The coasting trade as well as the foreign trade would be benefited by a harbour at Clovelly, 1648-1656—Excellent holding ground at Clovelly, 1662, 1663.

*Scotland, Coasts of.* Return of the number of vessels observed passing each of the several lighthouses on the coast of Scotland during each of the years 1850-1856, *Stevenson* 72—Several local harbours, rather than one large harbour, are required on the north-east coast of Scotland, *Abernethy* 3152. 3158, 3159.

Views of the Committee with reference to the demands for harbours of refuge between Pentland Firth and the Firth of Forth, *Rep. p. v.*

See also *Caithness Coast.* *Fraserburgh.* *Orkneys.* *Peterhead.* *Wick.*

*Seaford Bay. See Newhaven, and Seaford Bay.*

*Self-supporting Harbours.* Views of the Committee in favour of the proposed works being constructed upon the principle of being in part self-supporting, *Rep. p. x, xi.*

*Sheringham,*

## Report, 1857-8—continued.

*Sheringham, William Louis, R. N.* (Analysis of his Evidence.)—Has been engaged by the Government in surveying parts of the coast from the Land's End to Holyhead, 1145-1152—Considers that the coast between the Land's End and Hartland Point is especially dangerous, 1153-1155—An improvement of the existing harbours on the north-west coast of Cornwall, and generally would prevent a greater number of casualties than the formation of a few large harbours for vessels, more especially of large burden, 1156. 1234-1240. 1267, 1268. 1274, 1275—The Admiralty Wreck Chart shows that the great majority of casualties occur locally to small vessels of the several local ports, 1156. 1234-1240.

Evidence in favour of Padstow as the best and least expensive site for a harbour of refuge for vessels caught in a gale in the Bristol Channel, 1156 *et seq.*—Large vessels going down the Bristol Channel or the Irish Sea would hardly make for a harbour of refuge on the Cornwall coast, 1158. 1275—Doubt as to the coast about the entrance to the Bristol Channel being unusually foggy, 1159, 1160. 1256-1258—Considerable shelter now given in the roadstead at St. Ives, 1161-1164. 1214—Large expense necessary in making St. Ives a harbour or roadstead properly available for any considerable number of vessels; the expenditure, however, would be very useful, 1162. 1202, 1203. 1248. 1307-1309.

Vessels going down the Bristol Channel, and caught in a south-westerly gale, would be more likely to make Padstow than St. Ives, 1165-1169. 1220-1229—Witness proposes to increase the depth of water at Padstow by dredging, and by building a guiding wall to assist the scour of the tide; particulars hereon, 1170-1179. 1201. 1204-1208. 1255. 1301-1303—Greater depth of water at St. Ives than at Padstow, 1180-1185—Advantage of improving the existing means of shelter at several places along the Welsh coast, south of Holyhead, 1186-1199. 1209-1211. 1263-1266—An improvement of St. Tudwal's Roads at the north horn of Cardigan Bay would be very desirable, 1192. 1230-1233.

An outlay of about 40,000 *l.*, would go far towards doing all that was necessary at Padstow, 1200, 1201. 1299, 1300—On the whole Padstow is far preferable to St. Ives as a harbour of refuge on that coast, 1203, 1204—Milford Haven affords excellent shelter, but is not available in a south-west gale, 1209, 1210—Vessels caught in a south-west gale at the entrance of the Bristol Channel would probably run for King Road, 1212, 1213, 1223, 1224—Particulars as to the prevailing winds, as shown by witness's log for a period of four years, 1215—Danger to vessels in St. Ives Bay when the wind suddenly changes to the north-west, 1217-1219.

Practicability of making Padstow a large harbour of asylum by carrying out a breakwater; witness, however, does not contemplate a breakwater, 1241-1243—Objection to a large harbour of asylum at Trevoze Head, 1244-1247—Objection to salient points as sites for harbours of refuge: preference given to bights of bays, 1245. 1261, 1262. 1310—Respects in which witness objects to the site of Holyhead Harbour, 1245, 1246. 1317, 1318—Objection to a harbour of refuge at Towan Head, 1249, 1250—Impression that there is good holding ground at Towan Head, Trevoze Head, and Padstow, 1251-1254.

Ample supply of granite at St. Ives for carrying out a breakwater, 1259, 1260—Belief as to the greatest number of lives, as well as of wrecks, occurring in the case of small vessels locally lost, 1270-1272—For the purpose of shelter to the local trade, witness further prefers Padstow to St. Ives as a place of refuge, 1276-1282—Suggested cutting down of Stepper Point in making a guide embankment at Padstow, 1283-1289.

Shelter was always looked for by witness, when surveying part of the coast of Cornwall, at Padstow or Lundy Island, 1291-1293. 1319, 1320—The race of the tide in Padstow Harbour is by no means violent, 1294—Views of the late Sir Francis Beaufort in favour of Padstow as a harbour of refuge, 1295-1298—Strong objection to a harbour of refuge at Bude Haven, 1304, 1305—Preference given by witness to Porthdinllaen over Holyhead as the site for a harbour of refuge for large vessels, 1311-1318—Considerable shelter afforded by the roadstead at Lundy, 1323-1327.

*Shiffner, Rear-Admiral Sir Henry.* (Analysis of his Evidence.)—Has had considerable experience of the navigation of the English Channel, 2072-2075—Strongly recommends the formation of a harbour of refuge in Seaford Bay, Newhaven, as the most eligible site for the purpose between Portsmouth and the Downs, 2076 *et seq.*—Extract from the Report of Sir Byam Martin's Commission in favour of a harbour in Seaford Road, 2076.

As regards the number of wrecks on the south coast witness does not place much reliance on the Wreck Chart, and refers to a Return, prepared from the Admiralty Register, showing that in the years 1852-1856 there were more lives lost on the south coast than on the coast from Berwick to the Thames, 2077, 2078. 2090-2095.

Distance of 120 miles from Portsmouth to the Downs without any proper harbour, 2079. 2086—Many ships would make for a harbour in Seaford Bay, instead of incurring the

*Shiffner, Rear-Admiral Sir Henry.* (Analysis of his Evidence)—continued.

the risk of running for the Downs or Portsmouth in certain winds, 2080-2086—A harbour on the north-east coast, somewhere off the Tees, is very necessary, 2087—Greater importance for national purposes of a harbour of refuge in Seaford Bay than on the north-east coast, 2088, 2089. 2109-2112.

Best position for a breakwater in Seaford Bay, 2096-2098—Reference to Mr. Scamp, of the Admiralty, as having proposed a plan for a harbour near Newhaven, and as able to give information to the Committee on the subject, 2098-2100. 2103—The cost of the harbour contemplated by Sir B. Martin's Commission was 1,250,000 *l.*, 2101-2103—Available supply of material near Newhaven for a breakwater, 2103-2108—Captain Washington was a member of Sir B. Martin's Commission and signed the Report, recommending a harbour at Seaford, 2113, 2114.

*Shipping Trade.* Reference by the Committee to the great and increasing extent of the shipping interests involved in the inquiry, *Rep. p. iii, iv*—However it may appear that harbours of refuge are now required, it is a want which must become more and more urgent from year to year, *ib. iv*.

The Committee further allude to the great increase of late years in the coasting and foreign shipping trade, and to the increasing requirement of places of refuge on the coast, *Rep. p. xxi, xxii*.

*Silt.* Important advantage under witness's system of breakwater, that all danger of silt is avoided, *Hays* 3959.

*Sites.* General principles to be laid down in the selection of places for harbours of refuge, *Stevenson* 186, 187—Difficulty of saying whether the salient points, or bights of bays, are the more eligible for harbours, *ib.* 188—Respects in which salient points are more desirable than bights of bays as sites of harbours of refuge, *Henderson* 355-361. 490-495; *Claxton* 1759-1767—Advantage of salient points for naval stations, *Henderson* 493-495; *Moody* 522. 525.

Advantage of a salient position for naval stations; preference given for bights of bays for harbours of refuge, *Sir J. C. Ross* 633-635. 681-683—The precise point on the north-east coast, &c. where the wrecks occur is not a proper guide for determining the position where the harbour should be, *Coode* 889—Objection to salient points as sites for harbours of refuge; preference given to bights of bays, *Sheringham* 1245. 1261, 1262. 1310—The proper place for a harbour of refuge is an embayed coast, *Thompson* 2983.

Grounds upon which the Committee have not ventured to recommend particular spots for harbours; more minute investigation necessary by means of a Royal Commission before determining on special sites, *Rep. p. ix, x*.

*Sherries, The.* See *Portrush*.

*Stevenson, David.* (Analysis of his Evidence.)—Civil engineer, 1—Has had considerable practical experience in regard to harbours on the east coast of Scotland, 2-8—Great importance of a harbour of refuge for fishing vessels at Wick on the coast of Caithness, 9 *et seq.*—From 1200 to 1400 fishing-boats frequent the port of Wick every season, 11-15. 29-32—There have been several losses of fishing-boats and of life on the Caithness coast for want of a harbour of refuge, 21-28. 159-161—Much less extent of the fishing trade of Peterhead than of Wick, 29-32. 143-145.

Advantage of a harbour at Wick, in the case of vessels from the Baltic to the west of Scotland, which cannot take Pentland Firth, 33-39—Danger of the navigation of Pentland Firth in rough weather, 34-36—Great value of a harbour of refuge for passing merchant vessels at Peterhead, there being now no refuge on the dangerous coast between the Firth of Forth and Cromarty, 40 *et seq.*—Much larger merchant traffic passing by Peterhead than Wick, 40, 41. 73-82. 127—Merchant vessels going from the south to Archangel, &c., pass near to Peterhead and pass Wick at a distance, 42-44. 65-67. 249-253.

Particular winds, in which vessels from the south to the Baltic would be able to make Peterhead, 45-64. 152. 162-170—Adaptation of the coast at Peterhead for a harbour on a large scale, but not for a small harbour, 68, 69—The bay of Peterhead is fully as well protected by the conformation of the coast as the bay of Wick, 70, 71—Return of the number of vessels observed passing each of the several lighthouses on the east coast of Scotland during each of the years 1850-1856; 72.

A very large fleet of vessels might be accommodated in a harbour at Peterhead, 74—Considerable extent to which vessels now take refuge at Peterhead, 74. 97. 245-253. 260—Further statement as to the value of a harbour at Wick, more especially for fishing vessels, 76. 96 *et seq.*—Refuge available for vessels returning from Archangel, and caught in a north-easterly gale, 83, 84.

Considerable

*Stevenson, David.* (Analysis of his Evidence)—continued.

Considerable facilities for procuring near Peterhead material for a harbour, 85-90. 244  
—Excellent facilities also for procuring material at Wick, 87-90. 239-243—Witness's plan for a harbour at Peterhead involves an area of about 200 acres, and a cost of about 335,000*l.*, 91, 92—Mr. Rendel's estimate for Wick harbour was about 260,000*l.*, 91—The area of Wick Bay is 210 acres, 93.

Difficulties in the way of vessels making for Wick, if caught in certain gales when going northwards, 101-116—Objection of masters of vessels to go into Cromarty Firth on account of the peculiar state of the winds in the Firth, 108-113—Several fine harbours in the Orkneys available under certain circumstances when vessels are caught in a gale near Wick, 117, 118. 174-177—Difficulty at times in getting out of Wick Bay, 119-124—Wick is not nearly so desirable a refuge as Peterhead for the general traffic on the east coast, 127.

There are two entrances to Peterhead, 128—Depth of the proposed harbour there, 129, 130. 150, 151—Advantage of Peterhead over Wick as regards facilities for refitting disabled vessels, 131-142. 171-173—Extent of traffic along the coast near Wick further adverted to, 143-148—There are more wrecks in the Peterhead district than the Wick district, 149—Peterhead is nearer than Wick to the Baltic, 153-155—There are 30 whale-ships belonging to Peterhead, 156—Difference between Wick and Long Hope and between Peterhead and Long Hope, 157, 158—There are more fishing-boats off Wick than any other place on the Scotch coast, 178-184.

Witness is joint engineer with his brother to the Fishery Board of Scotland, and to the Commission of the Northern Lighthouses of Scotland, 184. 258—General principles to be laid down in the selection of places as harbours of refuge, 186, 187—Difficulty in saying whether salient points or bights of bays are the more eligible for harbours, 188—Peterhead stands on a more salient point than Wick, and is much further removed from any other natural harbour of refuge, 188, 189. 257—Greater facilities at Peterhead for large accommodation than elsewhere along that coast, 190-197.

Inadequacy of the plans for a harbour at Wick which were laid before the Committee last year, 198-201—There is no danger of Wick harbour silting up, 202, 203—Considerable number of wrecks near Peterhead, to obviate which, as well as to prevent vessels from being driven out of their course, a harbour is required, 204-211—Further reference to the natural harbours in the Orkneys, and their value to passing vessels, 212-218.

Nature of the information afforded by the Lighthouses' Returns as to the passing traffic, 219, 220—Various circumstances under which vessels now pass through Pentland Firth, 221-225—Necessity of a breakwater at Wick, inclosing the whole bay, in order to afford proper security generally, 226-230—On account exclusively of the fishing trade a harbour at Wick is of great importance, 231-234—For the accommodation of the general trade, Peterhead has higher claims to a harbour, 233-238.

If there can be a small expenditure only, such as about 50,000*l.*, it would be better expended at Wick than Peterhead; but the accommodation would be very limited, 234. 238. 254-256—Between 300,000*l.* and 400,000*l.* would be required for Peterhead harbour, 234. 255—There is no protection from the north-east wind at Fraserburgh, 257—Nor at Aberdeen, *ib.*—Witness has been employed, professionally, both in regard to Peterhead harbour and Wick harbour, 259. 264—Shelter at Peterhead is mainly required from easterly or north-easterly gales, 260-263.

*Sunderland.* See *Wear, The.*

*Swansea.* See *Mumbles, The.*

*Swilly, Lough.* See *Foyle and Swilly, Loughs.*

## T.

*Tees Bay.* The mouth of the Tees is an objectionable site for a harbour, as being so deep in the bay, *Henderson* 477, 478—Besides a harbour at Filey, there might be an auxiliary harbour in Tees Bay, *Coode* 841—Witness has often heard that the water is shoaling in Tees Bay, *Best* 2838, 2839.

Reference by the Committee to the influential evidence given in 1857, in favour of a harbour in Tees Bay, *Rep. p. vi, vii.*

See also *Filey Bay.*

*Thompson, Joseph.* (Analysis of his Evidence.)—Master mariner in the foreign trade from Liverpool; has known the port and the channel for twenty-five years, 2908-2914—Great advantage to the Liverpool foreign trade if there were an improvement of the bar at Waterford, so as to make the harbour more easily accessible, 2915-2917. 2934-2948. 2967-0.36.

## Report, 1857-8—continued.

*Thompson, Joseph.* (Analysis of his Evidence)—continued.

2976—Importance also for vessels to and from Liverpool to have a harbour of refuge at Carlingford, 2918. 2925. 2952-2962. 2990-2993—Good position of St. Tudwall's Roads, on the Welsh coast, as a place for some refuge, 2919-2922—Carlingford bar might easily be removed, and there is very good shelter and anchorage there, 2926-2930—The Isle of Man does not seem to afford refuge available for large vessels, 2931, 2932.

Advantage to vessels from Liverpool going north-about, if there were a refuge at Portrush, 2949, 2950. 2990—Advantage of a harbour of refuge at Carlingford over one at Portrush, 2952-2955. 2983-2993—The great majority of vessels outward bound from Liverpool go south, and would not be induced to go north by a harbour of refuge at Portrush, 2955. 2967. 2985. 3004-3010—Usefulness of the new harbour at Holyhead, 2963-2966.

A place of refuge between Greenore and Carnsore Point would not be so useful as one at Waterford, 2968-2977—Advantage of Waterford over Wexford as the site for a harbour of refuge, 2978, 2979. 2994-3201—Witness has taken refuge at the Mumbles in the Bristol Channel, which is a safe point at present, 2981-2983. 3008—The proper place for a harbour of refuge is on an embayed coast, 2983.

*Tidal and Trading Harbours.* When caught in a gale before reaching Flamborough Head, witness has always kept his ship to sea or run for the Firth of Forth, it being very dangerous to enter the tidal harbours with laden vessels, *Coston* 1065-1075—An improvement of the existing harbours on the north-west coast of Cornwall, and generally, would prevent a greater number of casualties than the formation of a few large harbours for vessels, more especially of large burden, *Sheringham* 1156. 1234-1240. 1267, 1268. 1274, 1275—The losses of small vessels on the east coast generally arise in their making for bad bar harbours, *ib.* 1238—Besides special large works at salient points, &c., improvements of the existing harbours generally is most desirable, *Claxton* 1876. 1892. 1900—Considerable expense of improving the tidal harbours of the east coast, *Lowery* 2148—Wherever there is a river there must be a bar, *Sir S. M. Peto* 3308—Evidence in favour of improvement by means of local funds, assisted by Government, of the local harbours at the Tyne, the Wear, and the Tees, rather than the construction of any one large harbour, *Vetch* 3899-3911. 3913, 3914.

The Committee have not considered harbours required for the trade of particular ports as coming strictly within the scope of its inquiry, *Rep. p. iv*—The Committee consider that the question of improving the tidal harbours should be left to the local management of each individual port, *ib.* xxi—The Committee are not prepared to recommend any public outlay upon tidal or local harbours, but suggest the expediency of public loans for facilitating local improvements, *ib.*

*Timber-facing or Framework.* See *Bethel, Mr.* *Blyth* (Northumberland). *Construction.*

*Tolls.* See *Passing Tolls.*

*Towan Head* (Cornwall). Objection to a harbour of refuge at Towan Head, *Sheringham* 1249, 1250.

*Trade or Traffic.* See *Shipping Trade.*

*Trading Harbours.* See *Tidal and Trading Harbours.*

*Trevoze Head* (Cornwall Coast). Opinion unfavourable to a breakwater at Trevoze Head *Sheringham* 1244-1247; *Forward* 1399—Special danger of the coast between Cape Cornwall and Trevoze Head, *Forward* 1336—A harbour of refuge would be more useful at Trevoze Head or Pentyre Point than at St. Ives, *Claxton* 1684-1695. 1818. 1854—Amount of shelter to be afforded by a harbour of refuge respectively at St. Ives and Trevoze Head, *ib.* 1818. 1854, 1855.

*Tudor, Commander, R.N.* Letter from Commander Tudor to Captain Vetch, dated 24 November 1857, showing the claims of Wick, on the score of its fishing trade, to a harbour of refuge, *App. p. 224.*

*Tyne, The.* Considerable local funds available towards the improvement of the entrance to the Tyne; importance of such improvement, *Vetch* 3899-3911.

## V.

*Value of Land.* Opinion that the public rather than the individual proprietors of land adjoining harbours of refuge, should benefit by the increased value of such land in consequence of public outlay, *Sir John Burgoyne* 2182.

*Vetch,*

## Report, 1857-8—continued.

*Vetch, Captain James.* (Analysis of his Evidence.)—There seem to be at present only two modes of constructing breakwaters, that is as at Dover and Holyhead, and both are very expensive 3896, 3897—Witness has not seen any works upon Mr. Abernethy's system of employing a timber facing in depositing the material, but understands the works at Blyth are very effective, 3898. 3912.

Evidence in favour of an improvement, by means of local funds assisted by Government, of the local harbours at the Tyne, the Wear, and the Tees, rather than the construction of any one large harbour, 3899-3911. 3913, 3914.

*Vetch, Captain.* Letter from Captain Vetch to the Chairman of the Committee, dated 14 April 1858, with reference to his recent examination of Wick Bay, and its advantages as the site for a harbour of refuge, *App. p.* 223, 224.

## W.

*Wales, Coasts of.* See *Bristol Channel.* *Cardigan Bay.* *Kemess Head.* *Milford Haven.* *St. Tudwall's Roads.*

*Walker, James, C.E.* (Analysis of his Evidence.)—Has been President of the Institution of Civil Engineers for ten successive years, 2624—Has been extensively employed by the Admiralty and others in the construction of harbours, 2625, 2626—Was member of the Commissions on Harbours of Refuge in 1840 and 1847; 2627—Has been employed as consulting engineer for Yarmouth Harbour; has recently reported upon the capabilities of that harbour, 2628-2633—Delivers in (*App. p.* 214-217) the Report, which is dated 16 March 1858; 2633.

The nearest harbours of refuge to Yarmouth are Harwich on the south side and the Humber on the north, 2634—It is estimated on good authority that 40,000 vessels pass the Yarmouth or Lowestoft Roads annually, of an aggregate tonnage of 5,200,000 tons, 2636-2640—The navigation between Yarmouth and London is very difficult, 2641. 2644—The vessels along the coast are chiefly in the coal trade, 2642, 2643.

Importance of a harbour of refuge at Yarmouth for the trade of the east coast; its eligibility for the purpose, 2644 *et seq.*—Large area of the roads available for refuge; 2649—The holding ground is very good, 2650—The roads are protected by the Scroby and Corton sands, 2651-2653—Considerable refuge now afforded by the roads in certain winds, 2655-2658—Witness does not consider it expedient that there should be any public expenditure on the roads; disapproval of sundry plans for their improvement, 2660-2662. 2692, 2693. 2785-2794.

Evidence in favour of an outlay for the improvement of Yarmouth Harbour as a useful auxiliary harbour to the roads, 2661 *et seq.*—Number and class of vessels which now use the harbour, 2664-2669—Depth at the entrance to the harbour and in the harbour, showing that only vessels of small size can now use it, 2670-2671. 2676, 2677. 2719, 2720. 2728-2735—In an easterly wind the mouth of the harbour is very unsheltered, 2672-2675.

Improvement as regards the depth, &c., of the harbour, which has been effected at a cost of 32,000 *l.*; further improvement suggested, which may be effected at a further cost of about 100,000 *l.*, 2677 *et seq.*—Breydon Water forms the chiefly available part of the harbour; its area cannot be much extended, 2683-2686. 2736, 2737—The deepening, widening, and regulating the channel of the river, and an extension of the piers, are the works contemplated by witness, 2687-2691. 2698-2702. 2740—There should be a groyne or arm behind the piers in order to prevent the action of the easterly winds at the mouth of the harbour, 2687. 2740. 2795—Depth and area of the harbour when improved as suggested; it would not accommodate vessels of large size, and would not contain a large number of vessels, 2690 *et seq.*—An outlay of 100,000 *l.* would be well laid out, 2691—Varying depth in the roads, 2705-2707—The sands off Yarmouth harbour do not shift to any great extent, 2724-2727—Width of the harbour, that is of the river below the town, adverted to with reference to the mooring of the vessels, 2756-2762—Doubt as to the number of vessels which might be able to leave the roads in a gale and take refuge in the harbour, 2772-2784.

[Second Examination.]—Recommendation by the Commissions of 1839 and 1844, of which witness was a member, in favour of a harbour of refuge and defence, at Seaford, as well as at Dover and Portland, 3771-3778—Opinion of the late Duke of Wellington that Seaford was a more important site than Dover for a harbour, 3774. 3776—Comparative statement of the loss of life between Flamborough Head and St. Albans Head and between Portsmouth and Dover; explanations thereon, 3779-3785. 3827, 3828. 3832, 3833—Witness recommends a harbour at Seaford as soon as Dover harbour is completed, 3785. 3806.

Good anchorage at Seaford 3786—Ample and available supply of material at Seaford for the construction of a breakwater, 3786-3787. 3825-3826—Explanation with reference to an estimate, as given by witness to Sir Charles Wood, that Newhaven harbour

**Walker, James, C.E.** (Analysis of his Evidence)—continued.

bour could be greatly improved for about 70,000 *l.*, 3788-3800. 3836—The proposed improvement would include a deepening of the entrance from two to eight feet; character and number of the vessels which might then be accommodated, 3794. 3801, 3802. 3811-3821—Estimate of 150,000 *l.* for more extensively improving Newhaven harbour and for building docks and basins, 3803, 3804. 3835, 3836.

The Report of the Commissioners recommending a harbour at Seaford was signed by Captain Washington, 3807-3810—Nature of the works proposed at Newhaven for a cost of 70,000 *l.*, 3813, 3814. 3866-3868—Character of the material available for the proposed works at Newhaven and Seaford, 3825, 3826—Non-objection to Seaford or Newhaven as a harbour of refuge on the ground of any facility for the landing of invading troops there, 3829-3831. 3869—The estimated expense of the harbour recommended by the commission at Seaford was 1,250,000 *l.*, 3834—Greater claim of the north-east coast than of any other part of the coast for a grant of public money, 3837, 3838.

Evidence in favour of a harbour of refuge, either at Ramsay or Port Erin, in the Isle of Man; Ramsay is the best site, but Port Erin is the most economical, 3839-3847—Considerable time and attention bestowed by the Commission of 1844 to the question of harbours, 3848, 3849—Way in which funds are proposed to be procured for the contemplated harbours of refuge or trade in the Isle of Man, 3850. 3855-3860—Delay in doing anything at the Isle of Man, in consequence, as witness believes, of an unfavourable report by Captain Vetch, 3851, 3861-3864.

Explanation as to the slow progress of the works at Dover; at the present rate it will require 45 years for the completion of the two piers, 3870-3879. 3893-3895—Considerable protection already afforded by the Dover works; increased refuge as the works increase, 3879-3881—Reason why the staging system of construction, as at Holyhead and Alderney, is not applicable to Dover, 3882-3886—Apprehended destruction of any timber frames which might be used as a means of depositing the rough material without waste, as on the staging system, 3887-3892.

**Walker, Mr.** Copy of Mr. Walker's Report on Yarmouth as a harbour of refuge, dated 16 March 1858, *App. p.* 214-217.

**Waterford.** All that is required at Waterford is an outlay upon dredging and improving the bar, *Sir J. Dombrian* 2365—The bar should be deepened, *Cumming* 2466—Great advantage to the Liverpool foreign trade if there were an improvement of the bar at Waterford, so as to make the harbour more accessible, *Thompson* 2915-2917. 2934-2948. 2967-2976—A place of refuge between Greenore and Carmsore Point would not be so useful as one at Waterford, *ib.* 2968-2977—Advantage of Waterford over Wexford as the site for a harbour of refuge, *ib.* 2994-3001—On the south coast of Ireland Waterford is the best situation for a harbour of refuge, *Hamilton* 3023-3026.

Reports received at the War Office from Lieutenant-colonel Pack and General Seaton, relative to the great facilities afforded by the harbour of Waterford for landing and embarking troops, *App. p.* 230.

The Committee recommend an outlay of 20,000 *l.* for the improvement of Waterford harbour, *Rep. p.* viii, ix.

**Wear, The.** Considerable local funds available towards the improvement of the entrance to the Wear; importance of such improvement, *Vetch* 3899-3911. 3913, 3914.

**Welsh Coast.** Advantage of improving the existing means of shelter at several places along the Welsh coast, south of Holyhead, *Sheringham* 1186-1199. 1209-1211. 1263-1266—The greatest number of wrecks on the coast occur between Newport Bay and St. David's Head; official list hereon adverted to, *Harris* 3467-3470—Between Holyhead and Milford Haven there is no place of refuge in a westerly gale, *ib.* 3471, 3472.

**Wexford.** The Committee are not prepared to recommend any outlay on Wexford harbour, *Rep. p.* viii.

**WICK:**

1. Importance of a Refuge for the Fishing Trade.
2. Extent of the local Fishing Trade.
3. Works proposed; their Cost, &c.
4. Importance of a Naval Station at Wick.
5. Opinions adverse to Wick, as compared with Peterhead.
6. Approval by the Committee of the proposed Refuge.

## 1. Importance of a Refuge for the Fishing Trade:

Evidence as to the value of a harbour at Wick, more especially for fishing vessels, *Stevenson* 9 *et seq.*; 76. 96 *et seq.*—On account exclusively of the fishing trade a harbour at Wick is of great importance, *ib.* 231-234—A harbour of refuge is desirable at Wick for fishing vessels, but not for anything beyond that, *Henderson* 273-



**WICK—continued.****1. Importance of a Refuge for the Fishing Trade—continued.**

276—Danger at times to the Wick fishing vessels for which a harbour at Peterhead would not at all provide, *Henderson* 387-389—Importance of Wick as a fishing station, *ib.* 402-405—A harbour of refuge at Wick would be very important, both for fishing and other vessels, *Cerjat* 532-536—The construction of a harbour of refuge would be an act of great humanity to the fishing trade, *Sir J. C. Ross* 641, 642.

**2. Extent of the local Fishing Trade :**

From 1,200 to 1,400 fishing boats frequent the port of Wick every season, *Stevenson* 11-15. 29-32—Greater importance of the local fishing trade than of the merchant trade, *ib.* 16, 17—Extent of traffic along the coast near Wick further adverted to, *ib.* 143-148—There are more fishing-boats off Wick than any other place on the Scotch coast, *ib.* 178-184—Nature of the information afforded by the lighthouses returns as to the passing traffic, *ib.* 219, 220.

Abstract of returns of vessels entered inwards at Wick in 1855, 1856, and 1857, *App. p.* 209.

**3. Works proposed; their Cost, &c. :**

Excellent facilities for procuring material for carrying out any works, *Stevenson* 87-90. 239-243—Mr. Rendel's estimate for Wick harbour was 260,000 *l.*, *ib.* 91—The area of the harbour is 210 acres, *ib.* 93—Inadequacy of the plans which were laid before the Committee last year, *ib.* 198-201—There is no danger of the harbour silting up, *ib.* 202, 203—Necessity of a breakwater enclosing the whole bay, in order to afford proper security generally, *ib.* 226-230—If there can be a small expenditure only, such as about 50,000 *l.*, it would be better expended at Wick than Peterhead, but the accommodation would be very limited, *ib.* 234. 238. 254-256.

Letter from M'Leod of M'Leod, dated 15 March 1858, and report by Mr. Rendel, dated 28 May 1853, with reference to a harbour of refuge at Wick; suggestions by Mr. Rendel for its formation, and estimate of the cost, *App. p.* 226-229.

Letter from Captain Vetch to the Chairman of the Committee, dated 14 April 1858, with reference to the advantages of a harbour of refuge in Wick Bay, and containing suggestions for its formation, *App. p.* 223, 224.

Letter from Commander Tudor to Captain Vetch, showing the claims of Wick, on the score of the fishing trade, as the site for a harbour of refuge, *App. p.* 224.

**4. Importance of a Naval Station at Wick :**

Advantage if there were a harbour for naval purposes at or near Wick, *Sir J. C. Ross* 632. 638-640. 643.

**5. Opinions adverse to Wick as compared with Peterhead :**

Wick is not nearly so desirable a refuge as Peterhead for the general traffic on the east coast, *Stevenson* 40, 41. 73-82. 127. 131-142. 149 *et seq.* 171-173—Difficulties in the way of vessels making for Wick if caught in certain gales when going northward, *ib.* 101-116—Difficulty at times in getting out of Wick Bay, *ib.* 119-124.

Vessels would rarely or never make for Wick if there were a refuge at Peterhead as well as at the Orkneys, or in Pentland Firth, *Henderson* 291-293. 297—Difficulty in getting into Wick in a strong westerly wind, and of getting out in an easterly wind, *ib.* 294-296—Inferiority of Wick to Peterhead as a harbour of refuge or a naval station, *Henderson* 310. 383-386; *Moody* 511. 518-527—Doubt whether the conformation of Wick Bay admits of a large and safe harbour there, *Henderson* 380-382.

**6. Approval by the Committee of the proposed Refuge :**

Views of the Committee as to the great importance of a harbour of refuge at Wick, especially for the fishing trade, *Rep. p.* v, vi—The majority of the evidence is in favour of a harbour at Wick as compared with Peterhead or Fraserburgh, *ib.*—It is understood that the fishery society is ready to apply a sum of 45,000 *l.* towards the proposed harbour, *ib.*

See also *Archangel Trade. Baltic Trade. Peterhead.*

**Williams, Captain John.** (Analysis of his Evidence.)—Has been engaged in the coasting and foreign trade from Liverpool, 3915-3918—The south channel is far the best course for Liverpool foreign-bound vessels. 3919, 3920—A harbour of refuge at Carlingford, by removing the bar, which might be done at a comparatively small cost, would be of very great importance, and would be the means of saving many wrecks, 3921-3953

**Winder, Thomas Robert.** (Analysis of his Evidence.)—Civil engineer to the Rye Harbour Commission; is now employed on the Dover breakwater by the contractors for the work, 1965-1971. 1988, 1989—On the part of the Rye Harbour Commission, represents to the Committee the importance of some public expenditure on Rye Harbour, not only for local



## Report, 1857-8—continued.

*Winder, Thomas Robert.* (Analysis of his Evidence)—continued.

local purposes, but as a convenient place for a coaling depot in time of war, 1972 *et seq.*—As a harbour of refuge, Rye harbour is not so available as other places along the coast, 1978-1987. 2008, 2009—Reference to the effect of the Dover breakwater upon the accumulation of shingle along the coast, 1988-1999.

*Wreck Chart.* Witness does not place much reliance on the wreck chart, *Sir H. Shiffner* 2077, 2078. 2090, 2091.

*Wrecks and Casualties.* The Admiralty wreck chart shows that the great majority of wrecks and casualties occur locally to small vessels of the several local ports, *Sheringham* 1156. 1234-1240.

Reference by the Committee to the immense loss of property by casualties on the coast, *Rep. p. iv*—Total loss of 2,184 vessels in five years; total of 5,128 casualties, including actual losses, *ib.*

See also *England, North-east Coast of.* *England, South Coast of.* *Flamborough Head.* *Laden Vessels.* *Loss of Life.* *Wreck Chart.*

## Y.

## YARMOUTH:

1. *Protection now afforded by the Harbour and the Roads.*
2. *Amount of the passing Traffic.*
3. *Views of Mr. Walker in favour of an Improvement of the Harbour; Nature and Cost of the Works proposed.*
4. *Disapproval of Plans for improving the Roads.*
5. *Exceptions taken to an Outlay upon the Harbour.*
6. *Petition from the Yarmouth Corporation as to the Importance of certain Improvements.*

1. *Protection now afforded by the Harbour and the Roads:*

Certain amount of protection afforded by Yarmouth Roads, although many vessels are wrecked on the shoals, *Coode* 847-851. 866; *Clarke* 993, 994; *Lowery* 2155-2163—One of the old channels to the roads is now closed up, *Lowery* 2165, 2166—Large area of the roads available for refuge, *Walker* 2649—The holding ground is very good, *ib.* 2650—The roads are protected by the Scoreby and Corton sands, *ib.* 2651-2653—Importance of Yarmouth roadstead as a rendezvous for ships of war, *ib.* 2654.

Considerable refuge now afforded by the roads in certain winds, *Walker* 2655-2658—Number and class of vessels which now use the harbour, *ib.* 2664-2669—There are occasionally from 1,400 to 1,500 windbound vessels in the roads, *ib.* 2646, 2647—Varying depth in the roads, *ib.* 2705-2707—Vessels of war can always ride in the roads, *ib.* 2770, 2771.

2. *Amount of the passing Traffic:*

It is estimated, on good authority, that 40,000 vessels pass the Yarmouth or Lowestoft Roads annually, of an aggregate tonnage of 5,200,000 tons, *Walker* 2636-2640—The vessels along the coast are chiefly in the coal trade, *ib.* 2642, 2643.

3. *Views of Mr. Walker in favour of an Improvement of the Harbour; Nature and Cost of the Works proposed:*

Witness has been employed as consulting engineer for Yarmouth Harbour; has recently reported upon the capabilities of that harbour, *Walker* 2628-2633—Delivers in (*App. p.* 214-217) the Report, which is dated 16 March 1858; *ib.* 2633—The nearest harbours of refuge to Yarmouth are Harwich on the south side and the Humber on the north side, *ib.* 2634—The navigation between Yarmouth and London is very difficult, *ib.* 2641, 2644—Importance of a harbour of refuge at Yarmouth for the trade of the east coast; its eligibility for the purpose, *ib.* 2644 *et seq.*—Evidence in favour of an outlay for the improvement of the harbour as a useful auxiliary harbour to the roads, *ib.* 2661 *et seq.*

Depth at the entrance to the harbour and in the harbour, showing that only vessels of small size can now use it, *Walker* 2670-2671. 2719, 2720. 2728-2735—In an easterly wind the mouth of the harbour is very unsheltered, *ib.* 2672-2675—Improvement as regards the depth of the harbour, which has been effected at a cost of 32,000 £; further improvements suggested which may be effected at a further cost of about 100,000 £, *ib.* 2677 *et seq.*—Breydon Water forms the chiefly available part of the harbour; its area cannot be much extended, *ib.* 2683-2686. 2736-2737—The deepening, widening, and regulating the channel of the river and an extension of the piers are the works contemplated by witness, *ib.* 2687-2691. 2698-2702. 2740—There should be a groyné or arm behind the piers in order to prevent the action of the easterly winds at the mouth of the harbour, *ib.* 2687. 2740. 2795.

Depth

## YARMOUTH—continued.

3. *View of Mr Walker in favour of an Improvement of the Harbour, &c.*—continued.

Depth and area of the harbour when improved as suggested; it would not accommodate vessels of large size, and would not contain a large number of vessels, *Walker 2690 et seq.*—An outlay of 100,000 *l.* would be well laid out, *ib. 2691*—The sands of the harbour do not shift to any great extent, *ib. 2724-2727*—Width of the harbour, that is, of the river below the town, adverted to with reference to the mooring of the vessels, *ib. 2756-2762*—Doubt as to the number of vessels which might be able to leave the roads in a gale and take refuge in the harbour, *ib. 2772-2784*.

4. *Disapproval of Plans for Improving the Roads:*

Witness does not consider it expedient that there should be any public expenditure on the roads; disapproval of sundry plans for their improvement, *Walker 2660-2662, 2692, 2693, 2785-2794*—Objection to any plan for forming a breakwater on the sands, *ib. 2785-2791*—Mr. Teasdel's plan for improving the roads is the best; but it would not form a perfect harbour of refuge, *2792, 2793*.

Yarmouth roadstead cannot of itself be made a harbour of refuge, *Best 2805*.

5. *Exceptions taken to an Outlay upon the Harbour:*

Witness, who is a master mariner, dissents from part of Mr. Walker's evidence as regards Yarmouth harbour, *Best 2801-2804*—As regards Yarmouth harbour, it cannot be made perfectly available as a harbour of refuge, on account of the inadequate area and depth, *ib. 2874, 2875*—Difficulty in vessels leaving Yarmouth Roads in certain winds, and taking refuge in the river, *ib. 2876-2882*—Width of the river adverted to with reference to the mooring and accommodation of many vessels therein, *ib. 2884-2900*—Nature of the works which would be required in order to enable vessels to be moored on each side of the river, *ib. 2893-2900*—Vessels can for the most part ride out a gale in the roads, or get protection under the Scroby or Corton sands without finding it necessary to make for the harbour, *ib. 2901-2907*.

6. *Petition from the Yarmouth Corporation as to the Importance of certain Improvements:*

Extracts from the petition of the corporation of Great Yarmouth, showing the necessity of constructing a harbour there, *App. p. 217, 218*.

See also *Lowestoft*.

SUPPLEMENTAL APPENDIX

AND

I N D E X

TO THE

REPORT

FROM THE

SELECT COMMITTEE

ON

HARBOURS OF REFUGE.

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*Ordered, by The House of Commons, to be Printed,  
17 June 1858.*

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VIII

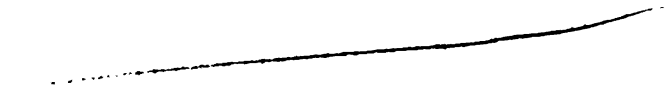
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